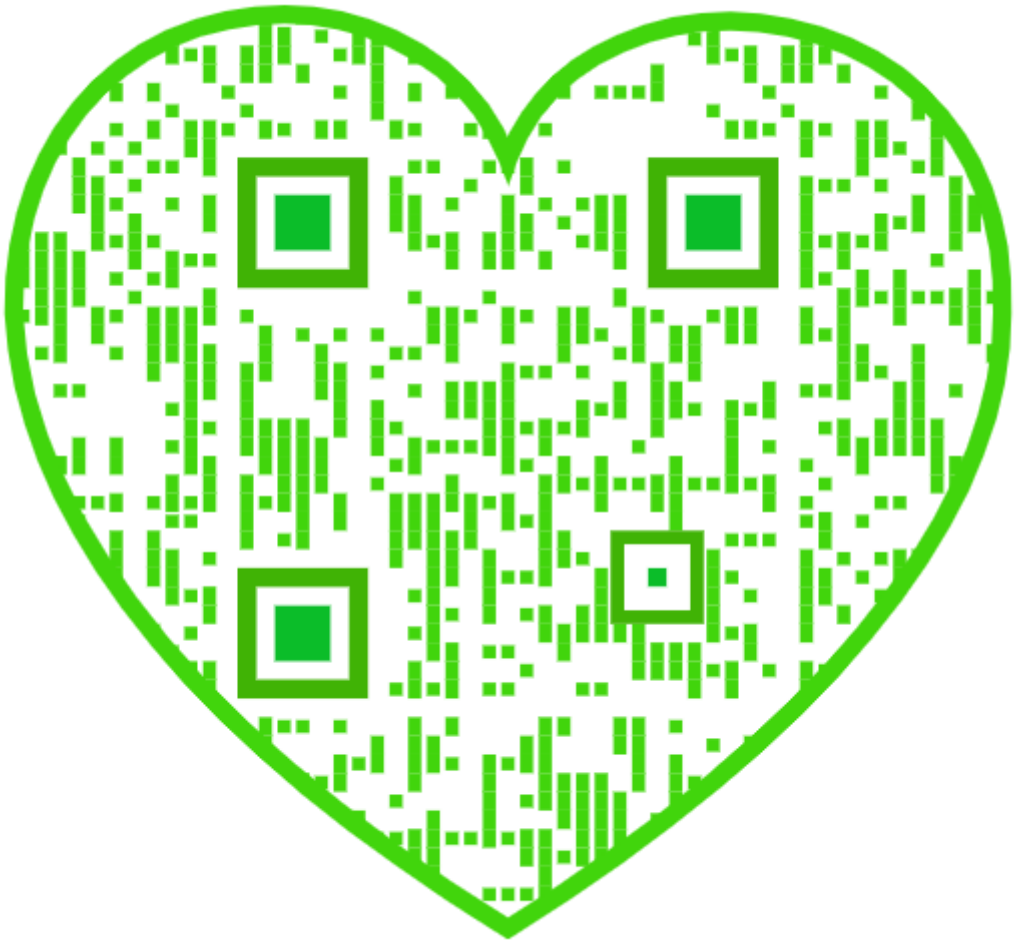

THE

NEW YORK

COACH-MAKER'S MAGAZINE,

DEVOTED TO THE

LITERARY, SOCIAL AND MECHANICAL INTERESTS OF THE CRAFT.

EDITED BY E. M. STRATTON.

VOLUME ELEVEN,

JUNE, 1869, TO MAY, 1870.

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MDCCCLXX.

PREFACE.

The volume now placed before the reader in the complete form we think is equal in variety and interest to any which has preceded it. Notwithstanding the past year has been one of extreme hardship among business men generally, and among carriage-manufacturers especially, we are happy to state, that, in a pecuniary view, our expectations have been more than realized and amply rewarded. For this result we are indebted to the interest our long-tried friends have shown in our favor, by correspondence and subscriptions for the Magazine.

Among the more prominent subjects in this volume we may mention "The Adventures of Three Jours," by H. S. Williams, which as a story applicable to coach-making has never before been equaled; "The Treatise on the Wood-work of Carriages," translated from the French expressly for us, ahead of any *French Rule* yet published in this country, in its general application to carriage-architecture; numerous "Sweeps for Scale Drafting;" besides a series of chapters in history under the heading of "Our Grecian Carriage Museum." Some of the original poetry we have published from the pen of Mrs. Whitney has been of a very high order, showing that the author has drank deeply from the Pierian fountain. The special departments would have been much better had the parties with whom we contracted done their duty faithfully, and not have allowed themselves to be swayed by outside influences, to our injury. Our "Pen Illustrations of Drafts," in the present volume, we have reason to believe have been well received both by workmen and manufacturers, and the fashion plates themselves are far in advance of all others, in design, engraving, and press work.

In taking leave of our old friends with the close of the volume, we entertain the hope that they will not forget us the coming year, but that they will, as in the past, give us pecuniary assistance, which, after all, is the most potent thing for the encouragement of literature.

Yours sincerely,

New York, *April* 22, 1870.

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DIRECTIONS TO THE BINDER.—The C and Elliptic Spring Clarence, published in the May number of this volume, should be bound facing the title page, and all the other fashion plates at the end of the volume in the order as numbered.

PLATE.

1. Full Clarence.
2. Light Phaeton.
3. Bracket front Coal-box Buggy.—Dog-cart Phaeton.
4. Scroll Coal-box Buggy.—Coal-box Road Buggy.
5. Six Passenger Park Phaeton.
6. Road Buggy.—Scroll Phaeton.
7. Shifting-top Buggy.
8. Gaylord's improvement in Carriage Springs.—Light Two-wheeled Tub.
9. Phaeton Carryall.
10. Six-seat Extension-top Sleigh.
11. Buggy Sleigh.—Physician's Phaeton.
12. Phaeton Sleigh.—Road Buggy.
13. Americanized Victoria.
14. Phaeton with Falling-top.
15. Original Monogram, H. W. S.—Side-bar Buggy.

PLATE.

16. Improved Cutter Sleigh.—Six-seated Family Sleigh.
17. Drop-front Rockaway.
18. Excelsior Dog-cart.
19. Trotting Coal-box Buggy.—Coal-box with Top.
20. Original Monogram, M. B. & Co.—Canoe Coal-box with Top.
21. C-spring Caleché.
22. Go-cart.
23. Rockaway with high doors and windows.
24. No-perch Buggy.—Two-seated Open Wagon.
25. Park Phaeton.
26. Excelsior Victoria Phaeton.
27. Coupé-pillared Six-seat Rockaway.
28. Nonpareil Top Buggy.
29. Dog-cart Phaeton.

PLATE.

30. Extension-top Phaeton.
31. Phaeton with back seat to turn in.
32. Shifting-top Coal-box Buggy.
33. Crane-neck Hearse.
34. Extension-top Cabriolet.
35. Round-cornered Box Buggy.
36. Coal-box Buggy.
37. Brett Phaeton.
38. Road Phaeton.
39. Shifting-top Scroll Coal-box Buggy.
40. Drop-front Pony Phaeton.—Pony Phaeton with Rumble.
41. Landau.
42. Rockaway with turn-over seat.
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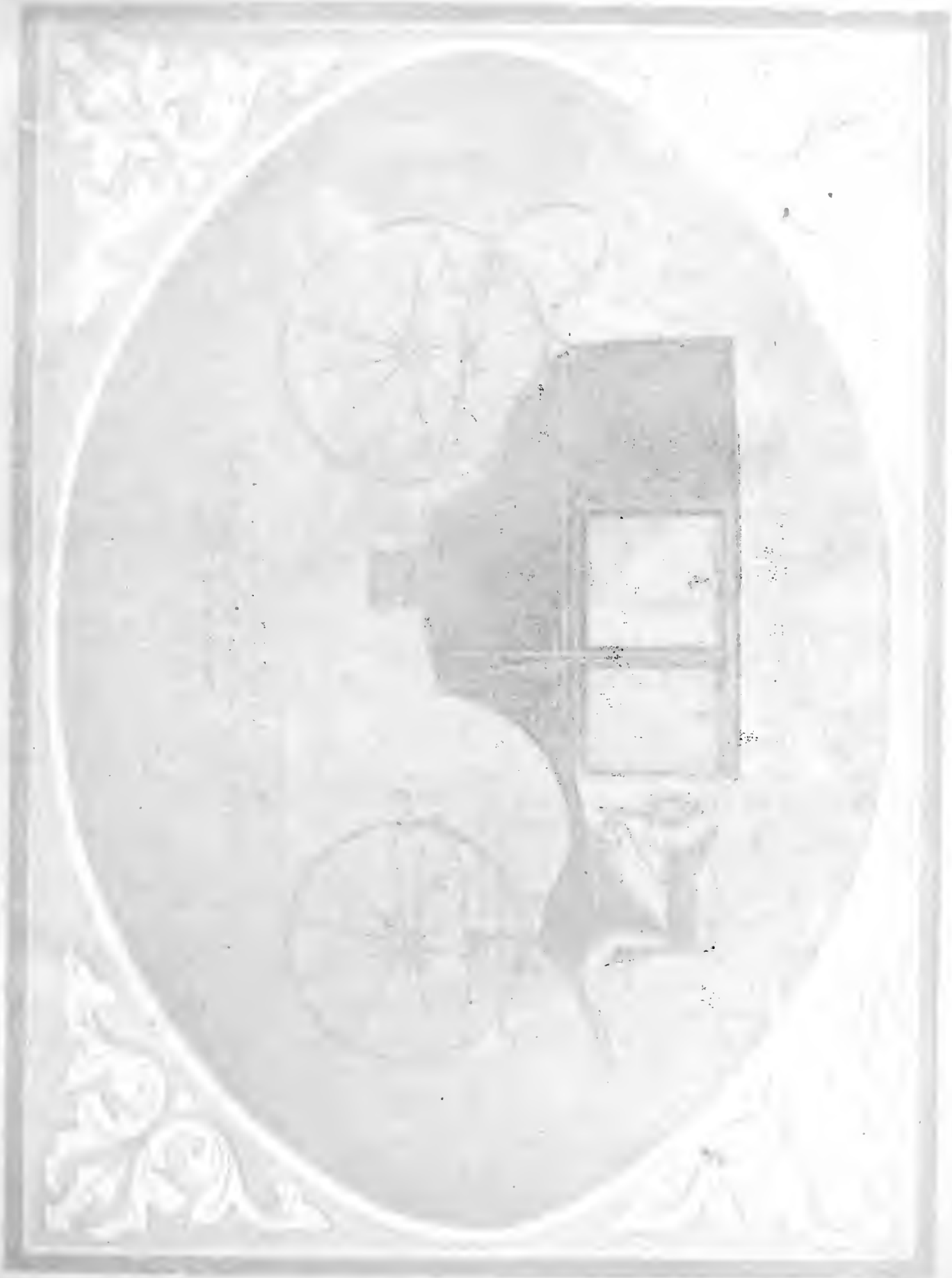

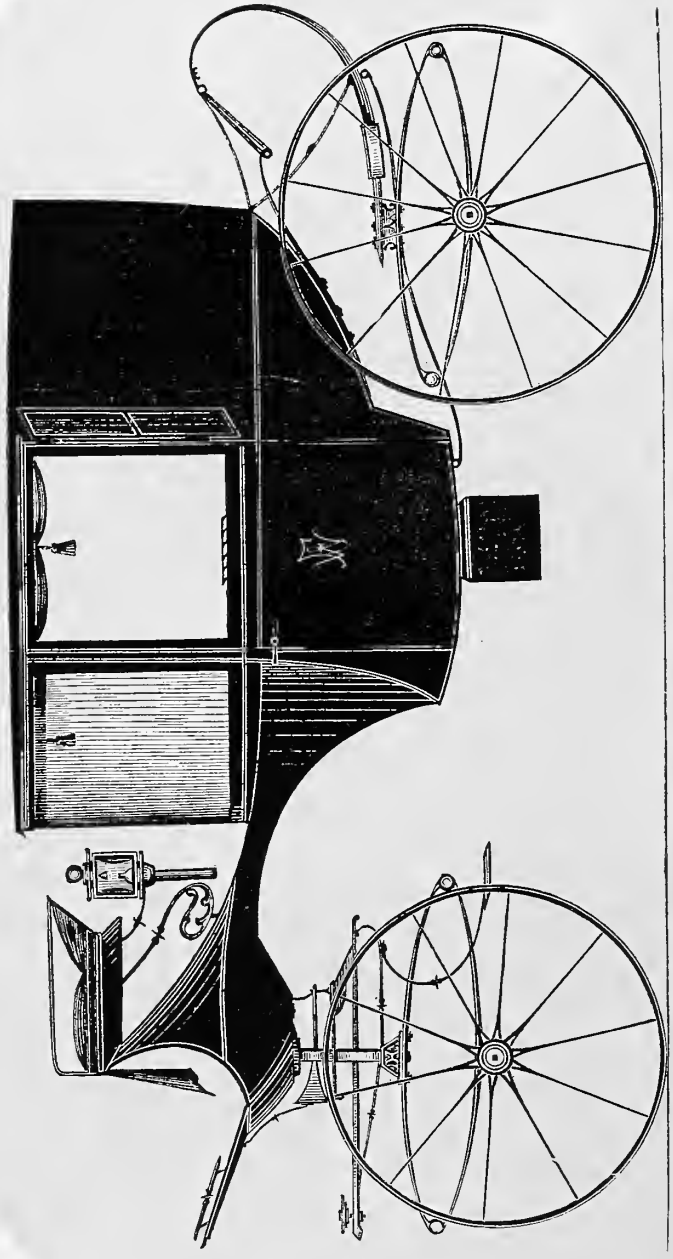

FULL CLARENCE.—½ IN. SCALE.

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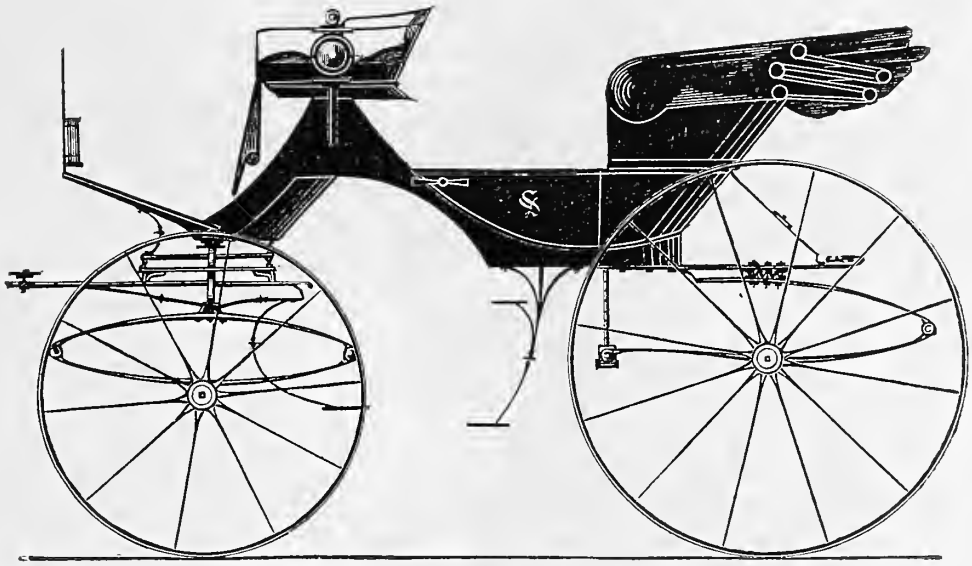

LIGHT PHAETON.—½ IN. SCALE.

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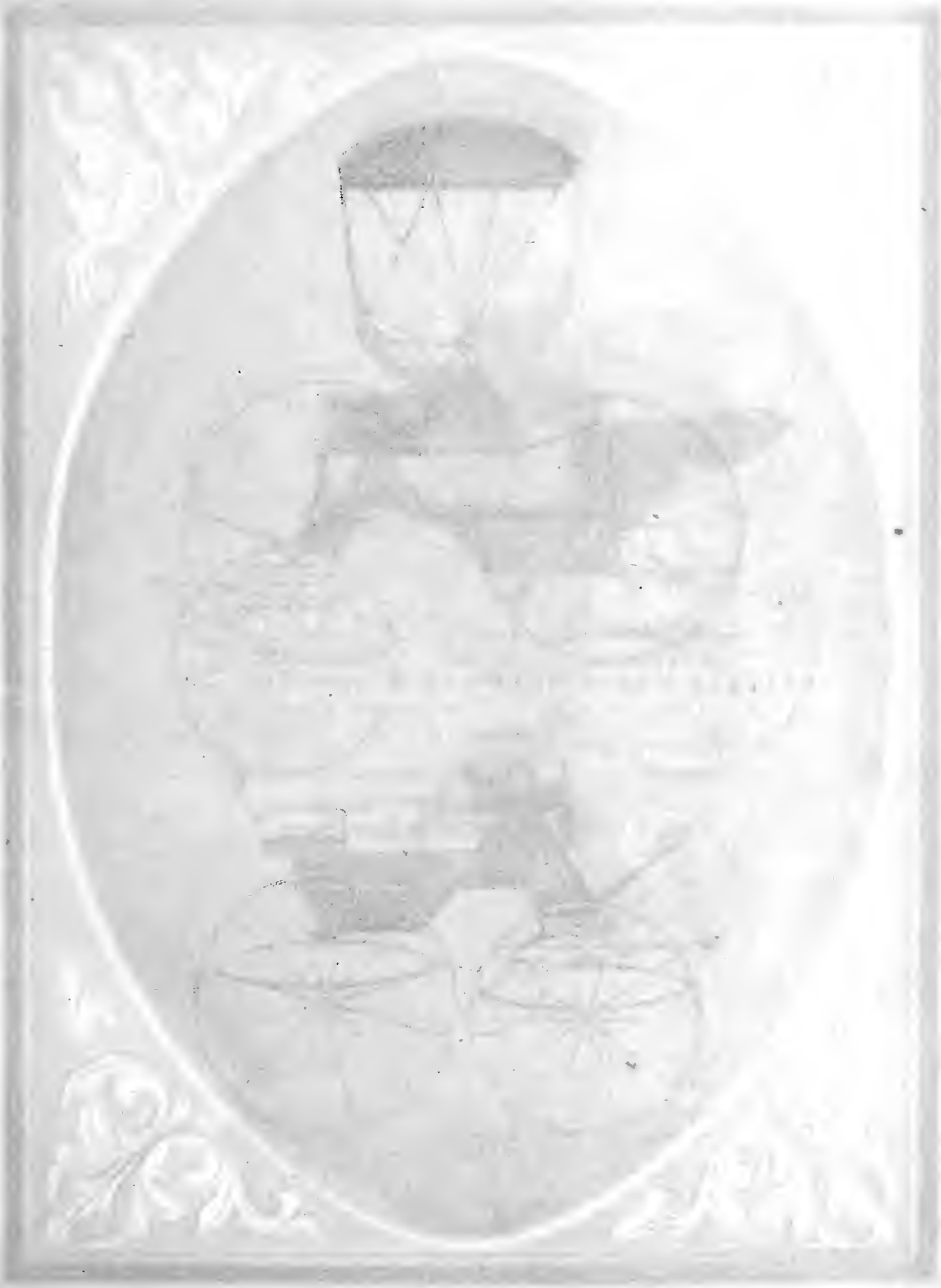

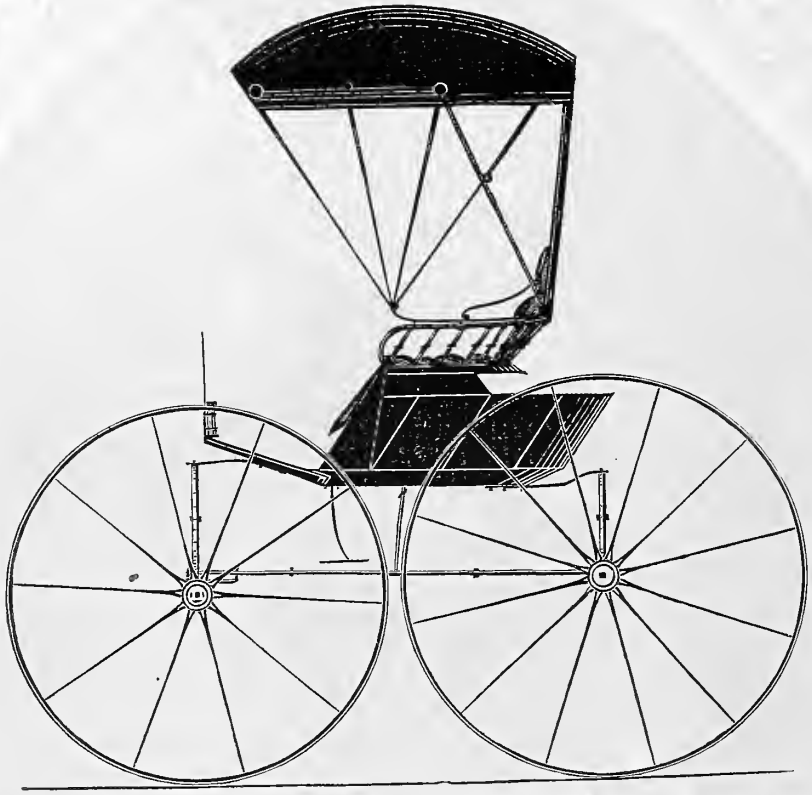

BRACKET FRONT COAL-BOX BUGGY.—$\frac{5}{8}$ IN. SCALE.

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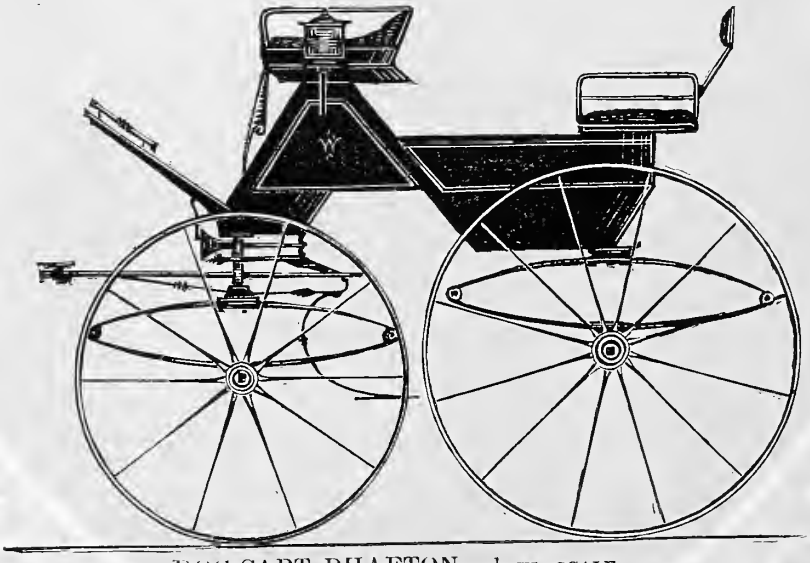

DOG-CART PHAETON.—$\frac{1}{2}$ IN. SCALE.

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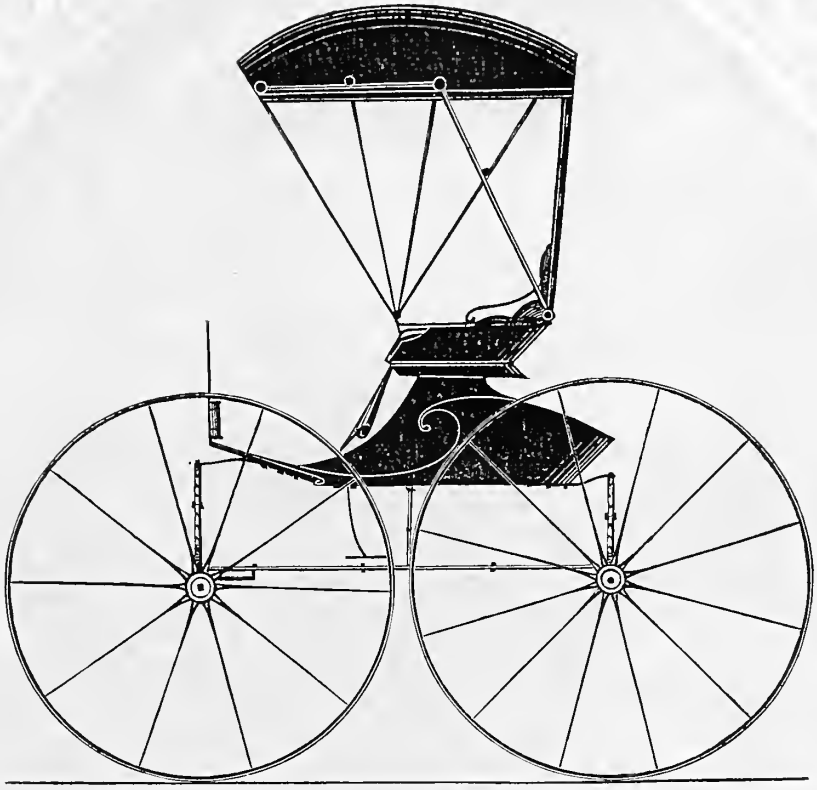

SCROLL COAL-BOX BUGGY. — ½ IN. SCALE.

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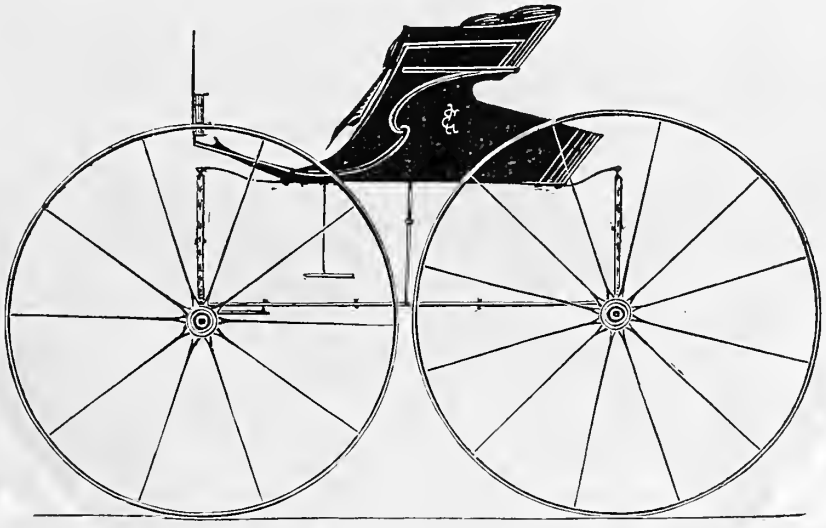

COAL-BOX ROAD BUGGY.—½ IN. SCALE.

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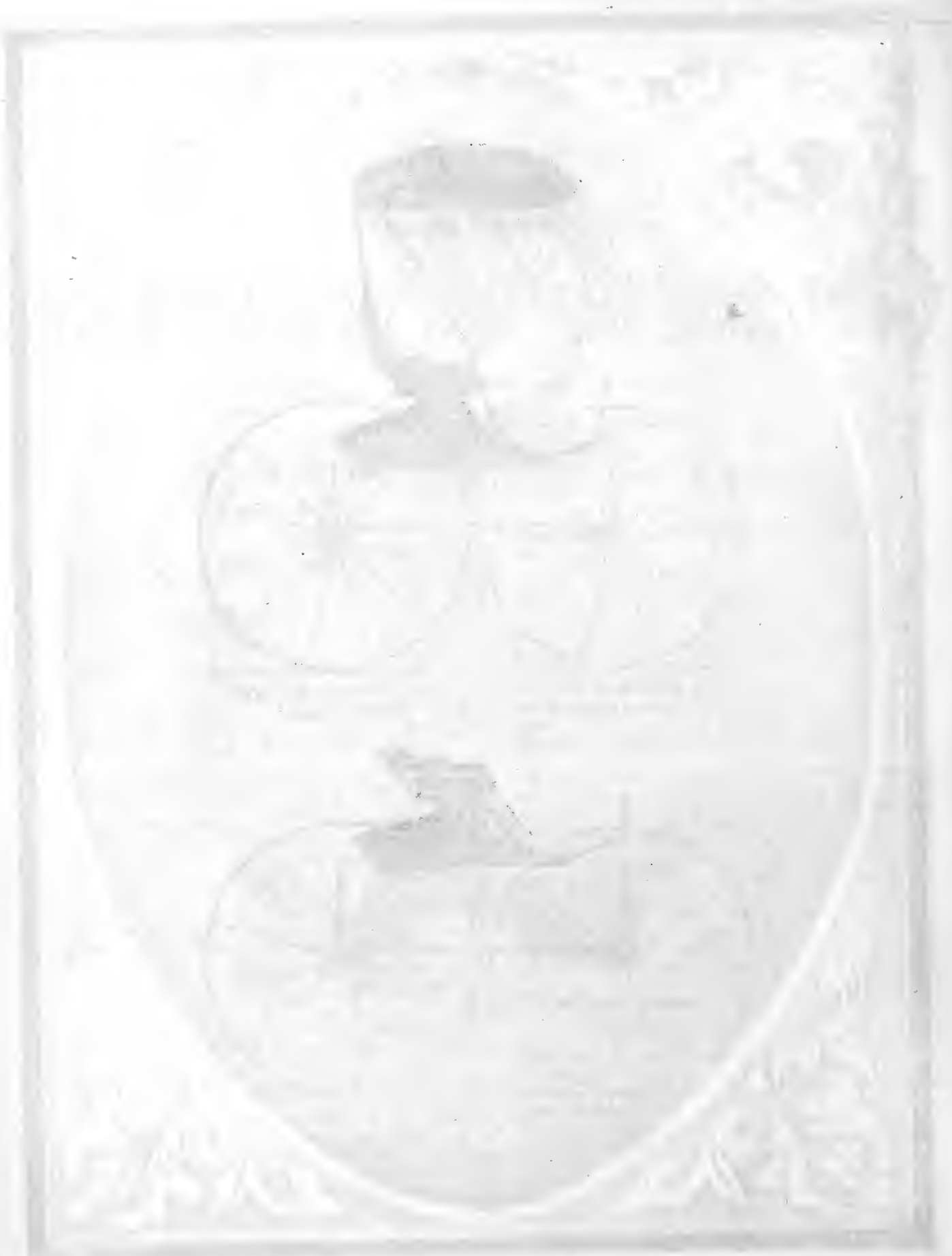


DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XI. NEW YORK, JUNE, 1869. No. 1.

Mechanical Literature.

ADVENTURES OF THREE JOURS.

BY H. S. WILLIAMS.

Chapter I.

The twelfth day of December, 1856, will long be remembered as one of the coldest and most disagreeable ever experienced in the Mound City. The snow that had fallen the previous night lay deep upon the ground, the sun struggled in vain to pierce the dull leaden clouds that obscured the sky, while the wind from the northwest came in fitful gusts and blasts, piling the snow in huge drifts and driving it with cutting force in the faces of the few pedestrians who were so unfortunate as to be compelled to brave the perils of the streets. About three o'clock on the day in question, three young men were seated in a large but warm and comfortable saloon, busily engaged in testing the merits of oyster stews and sparkling catawba. A greater contrast in their personal appearance could scarcely be found in a day's search, for one was,—but let me present their photographs in detail, for we will have a good deal to say about this trio before our story is ended. The first, Mr. Harvy Margrave, was principally noted for his boast that he stood just five-feet-four in high-heeled boots, and in the fact that he would persist in dressing some ten years behind the prevailing fashion. In looks he was one of those truly unfortunate creatures that could not boast of being handsome nor downright ugly, for his was one of those faces that one would pass a hundred times without being able to describe his appearance. Gray eyes, a nose belonging to the pug family, long hair, the color of which formed the dividing line between black and red, and a moustache that could only be described by the rather strong adjective—tremendous. On this latter hirsute ornament, by the way, he bestowed the sole care and attention that he ever gave his personal appearance. Every morning it received a dressing of pomatum, was duly curled and twisted, so that the ends stood out in fearful proximity to his ears, not unlike what we see in pictures of famous Mexican brigands, and without which no portrait of full-grown masculine members of the French Imperial family would be complete.

The second, Mr. Frank Loring, was about five feet ten, well made, dark blue eyes, a small, black moustache, beneath which a full, even set of teeth displayed their pearly whiteness; a head of black curly hair—in a word, his lady acquaintances—and they were many—pronounced him decidedly handsome.

The third, Mr. John Gloner, who occupied the head of the table, and who was chief of the trio, was decidedly ugly. Full six feet in height, slim and raw-boned, high cheek bones, a Roman nose, hair of that peculiar color known as "carroty," a short wiry beard a shade lighter than his hair, large mouth, awkward and uncouth in his general appearance, and you have the man. He had two redeeming points, however; first; in his forehead, that run high and white; and, secondly, in his eyes, small but black, that sparkled brilliantly beneath great shaggy eyebrows—eyes that almost charmed one when the speaker was interested in any subject.

Thus you have them photographed in ink—these fast and firm friends, and fellow-workmen in the same factory. The first was a trimmer, the second a painter, and the third a body-maker, and each a first-class workman in his line. Rather dull times in the metropolis of the Mississippi valley, and the extraordinary cold weather combined, had caused them to devote the afternoon to comfort instead of work. So much by way of introduction; and now let us proceed at once with our story.

"The suggestion of Mr. Margrave deserves to be duly considered," said Gloner, slowly, "for, as he truly says, work is decidedly slack—"

"And wages starvingly low," sputtered Margrave as he swallowed a spoonful of his stew.

"And then the weather is so terrible," put in Loring, with a shiver. "Twenty-six degrees below zero. Horrible!"

"Exactly," returned Gloner. "Three very good and very substantial reasons why we should seek a change of locations. Stronger arguments could not be adduced; but, in the language of the immortal Daniel, merely substituting the plural for the singular, 'where shall we go?'"

"I received a letter," said Margrave, "from up the river at Liberty about six weeks ago, offering me a job and stating that wages were good and work plenty."

"Three or four degrees colder than St. Louis," remarked Loring.

"True enough," replied Gloner, "and the bleak prairies of Illinois—"

"Three or four degrees colder than Liberty," said Loring. "It won't do. We must learn wisdom from the birds and emigrate southward. Wish I had gone a month ago."

"Sensible to the last," answered Margrave, giving his moustache an extra twirl. "Now allow me to make a suggestion, prefacing it with a brief episode in my own history. Last winter I worked in Memphis. I had a good boss, plenty of work and my own prices, and would have been there yet if it had not been for—"

He hesitated and gave his moustache another twirl.

"A woman, of course," said Gloner. "But never mind the particulars. It is a delicate subject, no doubt. You left, and now prepare to return."

"Exactly. Your penetrating powers are most excellent. I should like to go there, but not to work. No doubt but what we could all get jobs in the interior of Mississippi or Alabama, and there we will find the finest weather you ever experienced, as well as the best wages—in fact, we can get any price we are a mind to ask for our work, and if we wouldn't make those old fogy bosses open their eyes, 'twould be a wonder."

"No doubt but the winter would be pleasant enough, but how about the summer?" asked Loring.

"You have experienced as hot weather in St. Louis as you will find in Alabama," returned Margrave. "It is only the duration of the heated term that renders the summer in the south disagreeable; and if we find it too much for us, why, it is an easy thing to emigrate northward again."

"I believe the suggestion a good one," said Gloner, slowly, "and I move we go South, for the rest of the winter at least."

"And I second the motion," returned Margrave.

"There is no use in putting the question," said Loring, "for you constitute a majority; therefore I shall acquiesce, and now the sooner we put our plan in execution the better. I wonder what boats are up for New Orleans?"

Gloner rang the bell, and as the waiter answered the summons, he asked for the morning's "Republican." "It is now four o'clock," he said, "and the river will be frozen so as to stop navigation by to-morrow night if this weather continues."

"I can get ready in one hour's time," said Margrave. "A carpet-bag contains all my tools, and a small valise all my wardrobe."

"My wardrobe is a little more extensive," exclaimed Loring, "but my tools I carry in one pocket of my overcoat."

"Half-a-dozen boats up for four and five o'clock," said Gloner, after glancing over the shipping column, "and a 'special' announces the departure of the Champion for six, and a splendid boat it is. I know the captain well—a good, clever fellow, and a king among steamboatmen. We can get ready for her. What do you both say?"

"Let us go, by all means. Fill up, gentlemen!" exclaimed Margrave, rising, and seizing the bottle of catawba, he filled the glasses. "'Here's to our enterprise,' as somebody says in Richilieu."

The glasses were drained, the bill called for and paid, and at the door they separated to meet on board the Champion at six o'clock.

The steamer lay wheezing and puffing at the levee, while all on board was hurry and confusion. Dray-load after dray-load of bacon, corn and groceries were stowed away on her capacious decks, filling the telegraphic orders from New Orleans and other inner towns, so as to have a good stock on hand in anticipation of the closing of navigation above Cairo.

Margrave was the first to arrive, for he prided himself on being a minute man, but was joined in a few minutes by Loring. Six o'clock arrived, the last bundle of freight was put on board, the bell was ringing for the third time, and only a single plank remained out, when Gloner made his appearance with two ponderous trunks that made the porters use rather strong language and stagger a little withal as they *toted* them up the stairway.

"Was fearful you would not get here in time," exclaimed Margrave.

"Somehow I have the luck of arriving at the last minute," returned Gloner, taking a seat by the stove that glowed red hot in the social hall. "It has kept me busy, however, to get here this soon, for I had to settle up with the boss, pack my tools and wardrobe, beside, the most unpleasant of all, bidding my landlady and a dozen or two fellow-boarders good-by. None of them knew how much they thought of me until I was going to leave."

"That's always the case," said Loring. "We do not know how strong the ties of old associations are until we sever them. But the engines tell us we are about leaving; so let us brave the weather for a few minutes and see the last of St. Louis."

Up and down the levee, as far as the eye could reach, thousands of lights glistened through the frosty air, presenting a scene at once picturesque and beautiful. The steam bellowed from the escape pipes as the engines turned the ponderous wheels a few times, apparently by way of experiment, to see if they possessed the requisite power, half-a-dozen clerks sprang ashore, the plank was hauled in, the whistle sounded for the last time, and they were off.

"So much for St. Louis, with its frosts and snows; now for the sunny South," exclaimed Margrave as they returned to the stove.

Shortly afterward supper was announced. In the days of which we write, before the railroad divided the travel with steamboats, there was great rivalry between first-class boats to see who could present the best bill of fare, and the Champion was second to none in this respect. It was, in truth, a most excellent supper that our friends sat down to, and most ample justice did they do it.

"By the way, we have not decided on our points of destination yet," said Margrave as he passed his cup to the waiter to be refilled for the third time. "Is it best for all of us to get off at one place, or shall we divide out?"

"I have thought the matter over," answered Gloner, "and have come to this conclusion, which I will submit for your consideration. It is self-evident that Margrave here wants to stop at Memphis. Very well. Let Loring stop at Vicksburg, while I go on to New Orleans. Montgomery, Alabama, shall be our central point. From Memphis Margrave can strike out through North Mississippi, bearing down toward Columbus, thence through

Alabama by way of Eutaw, Greensboro' and Marion, and if unsuccessful, go on to Montgomery. From Vicksburg Loring can pass out to Jackson, on to Brandon, Demopolis and Selma, thence by river to Montgomery. I will go from New Orleans to Mobile, thence by steamer up to the capital. As soon as one gets a job, let him write to Montgomery, detailing the particulars, and if either of the others can get a job there. If all are unsuccessful, why, we will meet in Montgomery and consult together for future movements. What do you both say to the plan?"

"A most excellent one, and well digested in all its parts," returned Margrave, who, as the reader has already surmised, had a weakness for quotations.

"Then we will consider it settled," returned Gloner. "Of course the reason why I desire to go to New Orleans is on account of my heavy baggage, as transporting it by water is decidedly cheaper than by stage routes. And now I will go and hunt up the captain, when we will pay our fare and receive state-rooms. The boat is not crowded with passengers, fortunately, yet I have a choice in sleeping apartments, even on steamboats."

The captain was soon found, Margrave and Loring duly introduced, the fare paid and state-rooms secured, when they begun the task of getting acquainted with their fellow-passengers. As Gloner said, they were few in number. First, there was an ex-judge from Illinois, going to New Orleans with a couple of thousand bushels of corn; a young lawyer from New York going somewhere to make his fortune; a cotton broker from New Orleans going home; a cattle drover from Texas dressed in a complete suit of buckskin, who, having sold out, was returning to his boundless prairies; a medical student from the interior of Alabama; an invalid in the last stages of consumption going to Tampa Bay as the *dernier resorte*, and some half dozen others travelling for business or pleasure. The work of getting acquainted was easily done, and very simple withal. A few visits to the bar, the burning of a dozen or two of cigars, some three or four games of euchre, and the work was accomplished. The steamboat cabin on our western rivers is in truth one of the most sociable places in the world. Every passenger is as it were for a week or more a member of the same family. They eat together, they pass their days, and often the best part of the nights, together, so that they are compelled to get acquainted and be sociable, no matter how reserved they may be under other circumstances. A man's past history and antecedents is nothing. All the rigid laws that govern society in the busy world are here trampled under foot, and all are gentlemen placed upon an equality. As our friends had all seen much of the world, and were pretty fair talkers, they were not slow to take advantage of these facts, and when the time came to seek their respective state-rooms, they were on the best of terms with all on board; Margrave in particular, who knew the name of every passenger, where they hailed from, where going, as well as their business in going there.

The next day toward evening they reached Cairo, where a few more thousand bushels of corn and a half dozen men were added to the freight and passenger list, and just at daybreak the next morning they started down the river. The Champion was a first-class steamer and a great favorite with the travelling public, as but few boats running could excel her in speed, while the accommodations were in truth superb. A trip down the Mississippi at the time of which we write was very different from the same trip at the present time of air-line railroads. It was, in fact, an event in one's life to be treasured up in the store-house of memory and talked over in the years to come. To two of our travellers it was such an event in their history; and now as they proceeded southward, and the weather became more pleasant, they passed most of the day on deck. The scenery, to be sure, was rather monotonous—a bold, bluff bank on one side, and a low, level bottom, heavily timbered, on the other; but the river itself was ever beautiful in its magnificent grandeur. Every hour or so an ascending steamer or a slow descending one was passed, while the thriving towns at which they stopped always presented something new and interesting.

"This is a noble river," said Gloner as a party of the passengers were standing on the hurricane deck just as they were leaving New Madrid, a town rendered famous by the great earthquake of 1811. "A noble river, and it is, I consider, the greatest boast of America, despite her Lake Superior and her Niagara. Here we are a good thousand miles from the ocean, and we might go up the river seven hundred miles to St. Joseph—for I consider the Missouri the main stream—and there meet a steamer that had just descended fully fifteen hundred miles, making continuous river navigation of over three thousand miles. When a boy, the height of my ambition was to see this river and sail on its broad bosom, and now my early dream is about to be realized."

Just then a steam whistle sounded clear and shrill above, and all eyes were turned in that direction, when a steamer was seen rapidly approaching with its red and blue lights swinging high aloft, and its glowing furnaces reflecting far across the water, for it was now fairly dark.

"That's the Eclipse," exclaimed the Illinois judge, "the fastest boat on the river. We left her at Cairo this morning. Now for a race."

"Race!" returned the Texan, who was known as Governor. "Race!" I don't like any race unless it is a horse-race. It's dangerous, particularly on water, when one takes into consideration the unpleasant fact that he can't swim."

As the Eclipse did not stop at New Madrid, she was almost alongside of the Champion when the latter got fully under way, and by the way the engineer's bells kept ringing, it was self-evident that the Judge was correct, and they were to have a race between two rival boats.

For a mile or so they ran side by side, appearing like some "huge monsters infernal" rushing forward to scatter death and destruction about them. Then the Champion gained slightly and shot half her length ahead, whereupon our little crowd raised a shout not unlike that which we have since heard upon battle-fields, and in which even the Governor joined, at the same time taking off his cap and bearing his venerable head to the cold night breeze, exclaiming, "Hurra, boys! Champion in deed as well as in name."

But just then the furnace-doors of the Eclipse were thrown open, and in the red glare of the glowing flames you could see the black firemen, appearing like demons as they bent, half naked, to the huge pile of resinous pine, and cast piece after piece in the ravenous jaws before them; then the doors were closed, and the boat, seeming to take inspiration from her illustrious namesake, gathered

new strength at the prospect of defeat, and she sprang forward with a tremendous effort, gained slightly on her rival, snorted the breath from her iron nostrils more loudly than ever, and then slowly gained ground, ran along side for a few minutes, when a bend in the river on her side gave her the advantage and she shot by, while a shout of triumph rose from her decks that made the old wood on either side echo far and wide, whereupon all our friends re-entered the cabin with a sigh of relief and regret combined.

"Well, Governor," exclaimed Margrave, "even though you are opposed to boat-racing, it seems you took some interest in this one."

"My young friend," answered the Governor, very deliberately, "it is natural for every man to desire to excel every rival he encounters in this life, no matter what the undertaking; and I am human, so let us all go up and take a drink," which was accordingly done.

It was a bright December morning when the Champion rounded to and lay up beside the wharf boat at Memphis.

"I am sorry to leave you all," said Margrave, as, valise in hand, he stood at the head of the gangway, "and I almost envy you your trip down the river; but I must bid you good-by."

"Good-by," returned Gloner. "Do not forget your programme, nor let that daughter of Eve cause you to tarry too long in this ancient city."

"What!" exclaimed the Governor, taking the proffered hand, "are you going to leave us so soon, and is there a woman in the case? and just as I began to take an interest in you, too, for there is a similarity between us, in taste at least, for you are independent of the prevailing fashions of dress, and so am I—and a woman, hey? Here let me give you my parting advice, which I learned from an aged Indian in my employ. Avoid women; keep a good supply of money on hand; let to-morrow take care of itself, and you may be happy."

"Your advice is excellent," answered Margrave, with a laugh, "but decidedly hard to follow;" and he sprang ashore, walked briskly up the levee, and was soon lost to view in the crowded sidewalks of the busy city.

TREATISE ON THE WOOD-WORK OF CARRIAGES.*

INTRODUCTORY.

THE wood-work in carriages forms one of the principal branches of the art of coach-making; it embraces all the parts in wood that come under the names of body, case, box, and seats of pleasure-carriages, and those particularly designed for the transportation of persons.

The principal aim we have in view in this work is to teach the art of joinery in carriages in the manufacturing of coaches, with the aid of principles in geometrical descriptions such as have been established by Mouge. We shall give, also, the usual dimensions of the principal boxes, or bodies, and some ideas upon the forms the most advantageous for the service they are intended. We shall also mention the properties of the various natures of woods employed in this manufacturing, the season when it is best to cut them, the manner of measuring and storing them, of obtaining a prompt dessication and using them,—the results of experience, which have been made to determine their density, elasticity, and cohesion.

This treatise is not the first upon this subject; there exists one very little known in coach-making circles, but which, nevertheless, merits here special notice on account of the care with which it was written. We refer to that of Roubo, published at Paris near the year 1771, and made part of a work upon joinery in general, in building, carriages, cabinet-making, mosaic, and lattice-work. This work of Roubo is still very much esteemed in our day in all the branches upon which it treats. The theoretical part is very well explained, not with that simplicity and methodical clearness which we find in the actual works inspired by the genius of Mouge, but with the means known at that time by the most learned.

Roubo was a son of a builder-joiner, and the part of his book treating on that branch of art shows that he was familiar with it in all its parts. The part devoted to carriage joinery, also, leaves little to be desired; and if Roubo had not confessed in his work that he knew practically nothing about it (only having received his information from workmen familiar with it), one would have believed, from all the details and information accumulated therein, that the author was, on the contrary, perfectly familiar with it.

Roubo commenced his treatise of joinery in carriages by a precise history of the art of coach-making; he gave a summary description of the chariots, wagons, litters, or sedans, in use among the Egyptians, Greeks, and Romans. Then, reaching the time of the *Renaissance* (new birth or new age), from which dates the origin of the first carriages in France, he gives a very detailed description of the coaches and carriages, and of their transformation from Francis I. even to the end of the reign of Louis XIV. Then he analyzed the carriages of his time, gave the general dimensions of *caisses* (bodies), indicated a method for determining their outline, and the operations which conceal the construction of all the accessories and the delineations of building. Finally, he ended his treatise by a description of the various uses for which carriages were utilized in his time.

Roubo, examining the process of execution of carriage joinery by his contemporaries, pointed out their errors, and substituted a better method, which was not practiced, for in 1839, at Paris, they still repeated the errors this author had so justly criticised.

To the theoretical knowledge that Roubo possessed in a very great degree, that also was joined with a great experience. He foresaw the changes which, in the future, would take place in carriages; and time has fully justified his provision.

Fifty prints illustrate his book, and, not including all the plans useful for demonstration, the principal carriages in use since Henry IV., even to 1771, were designed and drawn by him. These engravings are well executed, and much superior to similar prints of carriages which were published at the same time in the encyclopœdia, dictionaries, and collections upon arts and sciences. Above all, there was a great carriage diligence (coupé), a Berlin (one seat), and a calèche (open carriage), which for arrangement and proportions of lines are perfectly executed; most of them are ornamented with all the richness of the style of Louis XV.

Shall we believe that, notwithstanding his merit and

* This article has been translated from the French of M. Brice Thomas, expressly for this Magazine, and will be continued until finished. The carriage-maker will find in the perusal much instruction, to be had nowhere else in the English language.—ED.

the services that his book really ought to have rendered, it was not then known in that branch of art. From all the reliable information we have on that point, the first copy of his book known in Paris was bought by Pellier, senior, carriage-joiner, in 1842, seventy-one years after its publication. Then several of the processes of execution demonstrated therein had become known, they having been taught by M. Gablot, in August, 1839.

It would be temerity, perhaps, to pass conjectures upon the causes which prevented the work of Roubo to penetrate into the literature of carriage-making, and, above all, the joinery of carriages. Was it the high price of the work (which ought to have been at least 150 francs at the time of its publication), or the ignorance of workmen at that time? It was, perhaps, one or the other. If Roubo had published his treatise in installments, so that the price of each had been approachable, it is evident that his work had been better known, and would certainly have contributed to the progress of the art of *carrosserie* (carriage-making).

In an historical point of view this work of Roubo's will always be held as one of great merit; it gives us a very detailed description of the construction of carriages from the time of their origin in France to the time of his publication. It subsequently tells us that the Parisian carriage was very popular to the end of the reign of Louis XV., and would evidently occupy the first rank in the world.

In the meantime some English styles were appearing among us, especially the coupés (which they then called diligences), almost like our great city coupé (coupé de ville). Roubo exhibited his astonishment and indignation. See what he says on page 518 of his treatise:

"The *caisses* of carriages called English are after the style of a Berlin and diligence, but oftener of the latter than former. These carriages differ from those of the French in that they have less enlargement of the shaft, they are not arched at the sides, where they have only a little widening and are less arched and less in height than these last. These carriages have not the curtained window, not even a show of a bishop's staff, and the window in front is divided in two parts, which slide independently the one of the other, being divided by a post behind, in which are placed double grooves.

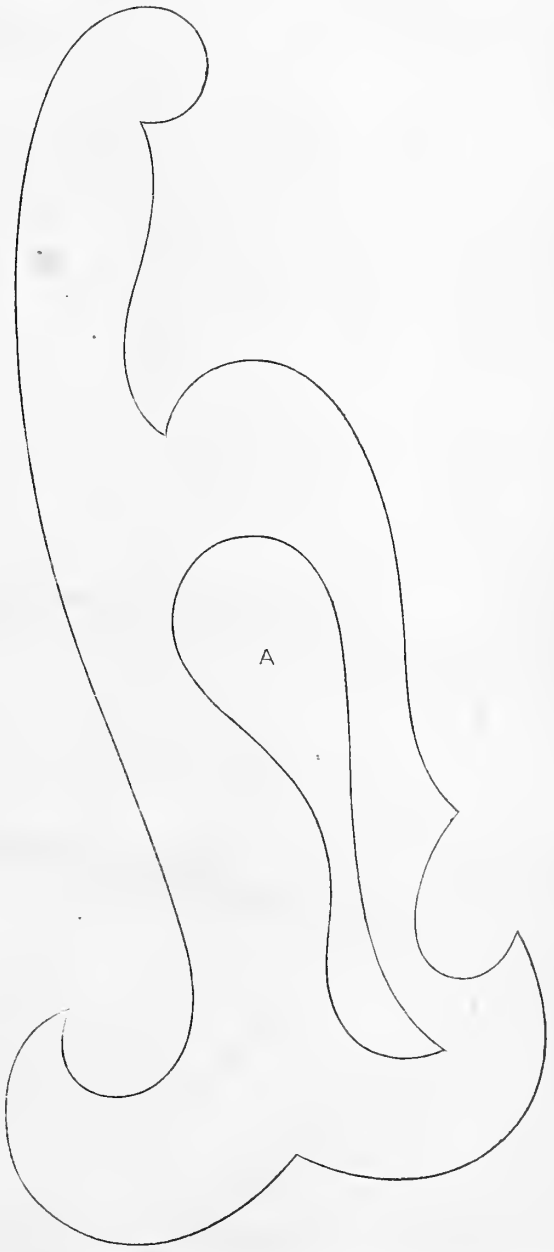
"The English carriages are very fashionable at present, and I do not know why, as they possess neither beauty of form or grace, resembling rather a chest pierced with several arrows than the box of a carriage; but it suffices that the invention comes to us from England, to the end that all must have one, or desire to, as if some law existed obliging us to be the servile imitators of a rival nation, and which, although very respectable and worthy our imitation, should never be imitated in works of taste in general, and above in that of which I treat."

It is well to remark here, since that time the English carriages have been distinguished by great simplicity of construction.

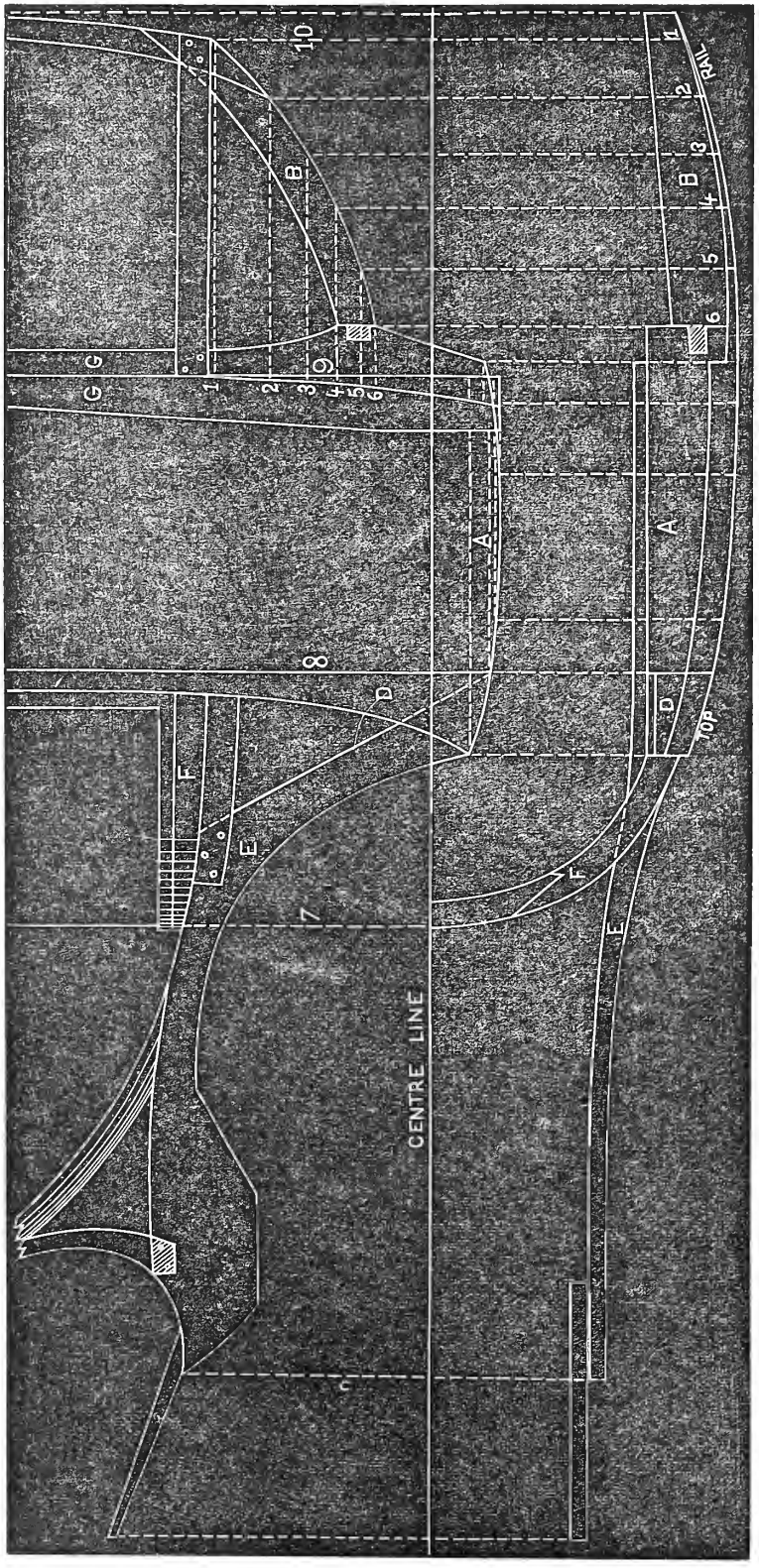
(*To be continued.*)

SWEEPS FOR SCALE DRAFTING.—IV.

The sweep we give on this page is the fourth in the series intended to aid the mechanic, by furnishing him with the proper instruments for drafting carriages on a small scale. As some of our readers may not have seen our former remarks, for such we will add that in order to transfer the sweep to the veneer, it will be necessary, first, to copy the outlines by tracing them carefully on a transparent piece of paper, this paper should then be laid face side down, and the lines gone over again with a pointed stick of hard wood. In this manner an impression of the the outlines will be left on the veneer, to guide the manipulator in cutting his sweep with a penknife. The space at A should be entirely cut out. Finish by filing the edges smooth, and a little rounding, that your pen or pencil may work freely when drawn along the edge.



SWEEP FOR SCALE DRAFTING.



CLARENCE WITH METROPOLITAN BOOT AND CANT.—THREE-QUARTER INCH SCALE.

GEOMETRY OF CARRIAGE ARCHITECTURE.

BY A PRACTICAL COACH-MAKER.

BODY CONSTRUCTION.—PART THIRTY-FIRST.

THE diagram, in this instance, refers to the clarence, which appears on the first plate in this volume. When placing the diagram on the blackboard, always, in the first instance, draw the center-line to serve as the base for future operations, as marked in our plan. Having determined the width of door and length of quarters, next draw the perpendicular lines 7, 8, 9, and 10. In this drawing we have presented the face side of the standing-pillar, G, so as to exhibit the amount of the turn-under of the body.

The dotted lines intersecting each other and numbered from 1 to 9, exhibit what is called the square rule of construction, a knowledge of which is very essential in building complicated jobs like this. When putting these on the board, begin by setting one leg of the compasses on numeral 1 of the dotted lines at the standing-pillar, and get the distance from the standing-pillar (where it commences turning under) to the dotted line correspondingly numbered on the cant below. This distance is next pricked off at that point and afterwards the other numbers should be gone through with in like manner, until the whole are added as in our diagram. By this process the sweeps of the bottom-sides and back pillars A and B are determined.

What is called the cant is laid down on the lower edge of the board. There A is the bottom-side corresponding, lettered the same as in the draft above; B B, the back-pillars; D D, the front-pillar; E E, the neck-rocker; F F, the compass front, which should be spliced as shown in our diagram.

SCREW-DRIVERS AGAIN.

BY JOHN B. PEEK.

MR. EDITOR:—My attention has been directed to an article in your magazine for the month of April, under the heading of "Screw-drivers—Once More," by Body Maker. Without entering upon an extended review of his denials—since he has adduced no argument—I shall briefly notice the points in his article. In the first place, he says "there can be *no distance* between the end of the handle and the line of the screw, unless the screw-driver is inclined out of the perpendicular." I will simply ask him—Is there no distance from the end of the handle to the point of the driver? My two-foot rule says there is; and be-

sides, is there no distance from New York to Bridgeport on a direct line to Boston? If he cannot see, or find, the distance in both cases, perhaps those architects and scholars whose services he obtained on my former article, may be able to elucidate the points and distances in such a manner that he can *comprehend* what I mean when I say "*the distance between the end of the handle and the line of direction of the screw acts as a lever.*"

"Body Maker" claims there is a misunderstanding between us. For my part, I think I have none; but in order to do away with it on his part, he resorts to a forensic settlement, making the proposition contained in your magazine of April as a basis of settlement in regard to the questions at issue between him and myself. I accept those propositions, as far as concerns the matter of each placing five dollars in your hands; and also that the editor of the *Scientific American* shall decide the case. But as I am the challenged party, I claim the right by the code, to choose place and weapons. I propose, then, that Body Maker and myself place in your hands three dollars *each* additional, making sixteen dollars. If the decision is in favor of Body Maker, the sixteen dollars is to pay his subscription to your magazine and the *Scientific American*, *each*, two years. If the decision is not in his favor, the sixteen dollars is to pay my subscription to *each* publication for two years.

As I have stated the time and place, according to the code, I will now name the weapons. Body Maker is to send to your address (express charges paid) a hand screw-driver such as he claims to use, the blade not to exceed eleven inches in length (or shorter should he deem proper), and I will also send on the same conditions to your address, a driver which I now use. The decision to be made practically from these two drivers, all marks of the owner being expunged. Furthermore, he in whose favor the decision is made shall have forwarded by express to his address both screw-drivers. Dare Body Maker accept these terms? I have accepted his challenge!

In conclusion, he observes that there is one point about the screw-driver which has not been touched upon in this discussion, also giving us an illustration of *how* the point of the driver should be formed. According to his theory, allow me to ask Body Maker how many different sized screw-drivers he has in use to fit the neck of the many different sized screws? He being fearful that the decision by the editor of the *Scientific American* may be against him, winds up by what *he* deems a *witty* derision of elasticity, expecting much force from a dog power. I think his plan can be adopted with a great saving on the running expenses of the machinery, providing the dog is heavy enough and the shaft not too elastic.

Home Circle.

THE VELOCIPEDIST TO HIS MACHINE.

Speed on, my peerless swift-paced steed,
Show forth thy utmost powers of speed.
(Why will it wabble?)
Fair damsels note thy bird-like flight,
And praise thy form compact and light.
(Jerked o'er the cobble.)
E'en fools who scoff the iron horse,
Admire thy arrow-darting course.
(I fear I'll fall!)
Thy wheels, like chariot of the sun,
Revolve as driven by Phaëton.
(I'm sure I shall.)
No eye can trace the speeding spokes,
Responsive to my trained foot's strokes.
("Sprained" it should be.)
Like bloodhound bounding to the fray,
Swift as the eagle for the prey.
(The boys pass me.)
We skim along the wondering earth,
And distance steeds of vulgar birth.
(When they stand still.)
We rush through plodding, dusty streets,
The swarming, choking town retreats.
(I've had my fill.)
We gain the open, well kept road,
Sparks rim thy wheels with iron shod.
(I'm soaked in sweat.)
Firm poised, I feel I fear no trace,
The freshening breezes flush my face.
(My boots are worn.)
My every nerve the motion thrills,
And happiness my bosom fills.
(My pants are torn.)
Past lake, o'er hill, through wood, down vale,
I skim like bark before the gale.
(I'm saddle-sore.)
My blood within my veins flow free,
I feel of spirit birth with thee.
(I'll ride no more.)

WINTER RAMBLINGS IN KENTUCKY.

BY PORTE PENCIL.

Continued from page 184, *Vol. X.*

The landlady, who was a strong and healthy woman, commenced early and made a great stir to put things in order. She instructed her boys to put on a back log, and pile up *heaps* of wood by the side of the fire-place; her girls to have some cider drawn, butternuts brought down, and plenty of doughnuts and cheese set by in the smoke house, while she arrainged two stout barrels of apples in the middle of the floor, and fixed the seats precisely as she intended they should all sit. The party began to come in at about dusk, and at seven o'clock, nearly twenty couples of young men and girls had gathered in from the neighborhood. It is impossible to describe the scene preparatory to the "paring" operations, no one can imagine the character of the noise produced by the chattering of so many voices, unless he has been in the neighborhood of an awakened pigeon roost—I mean a roost of wild pigeons. However, order was magically restored in a short time, and it being settled who should be the "parers" and who the "sorters" who the "quarterers" and who the "corers," they all fell to, and a large tub was shortly filled with apples, nicely "cored and quartered." During this operation, however, there were sundry snappings of seeds and twistings and twirlings of apple skins, which furnished no less amusement to myself than glorious sport for the company. It is to be supposed that I received my full share of apple seeds and apple skins, the company having become wonderfully familiar with me for so short an acquaintance.

When the first tub was filled there was a respite, and

the thunderings, murmurings, screaming and screeching, commenced again,—the cider circulated, and as soon as Dan the fiddler began to "tear out" a tune, there was such a jumping, shuffling, kicking, spilling of apples, flying of skins, and, "grand and lofty tumbling," as I never before witnessed. It "got out," presently, that amongst my other numerous accomplishments, I could play on a fife! Upon this, Dan transferred his violin to me, and while he ran more than two miles, swifter than Crusoe ever chased a goat, after a fife, I inspired the dance with music on the former instrument. When Dan the violinist arrived, I applied the shrill pipe by way of accompaniment. The effect was most wonderful. The whole company stood still, and gazed for a moment, then the *soiree*, commenced again as though it had received a supernatural kick—and indeed the hipsey-saw, the *chasse*, the crossover, the down outside, the double shuffle, the single shuffle, the waltz, gallopade, or "hip and hop," and the reel and hornpipe, were mingled there with most surprising spirit, congruity and taste.

Again, however, after circulating the cider and the Rose Bud Bourbon, all returned to the task of apple paring. But Dan and myself, by universal acclamation, were appointed to entertain the company with some of our "finest touches." Dans arm, however, soon became fatigued, and as for myself, my breath could not have held out much longer, for my instrument was an ancient one, required a deal of wind and much watering, whereupon Dan proposed that the eldest of the company should relate a story. It fell upon a small, sharp-nosed, rough-hewn, long-haired man, of about sixty, who, it appeared, had just happened in. Drawing his chair into the corner, and thrusting his stick into the ashes he thus began:—

"There was once a rich miser, who, laying at the point of death, made his will, wherein he provided, that as he had always been fond of hickory nuts, the space unoccupied in his coffin after his death should be filled with them. His executor did as directed, and the old miser and his hickory nuts were carried to the tomb.

"Now, at the old man's funeral, a youngster who had a great liking for hickory nuts, and couldn't for the world, see that so many in the coffin could be of any possible use to the dead miser, resolved to get them, so he started one dark night to procure the nuts. Coming to the gate of the burying ground he met a stranger, who asked him where he was going? He replied, 'None of your business.' Where are *you* going?—None of *your* business. Thus at issue upon such equivocal answers, they suspected each other of being engaged in like pursuits. Whereupon the former frankly told the latter, that he was going to get the hickory nuts in the old miser's coffin. 'Well,' said the other, I am going to steal a sheep, and now, if you are a mind, we'll engage to go snaks,—'Agreed,' replied the former, 'and we'll meet on the steps of the church.' They went each his own way; the youngster succeeded in getting into the tomb, and opened the old misers coffin. He took out nigh upon a basket of hickory nuts and tied them up in the old man's shroud. On reaching the church door he found that he was in advance of his comrade, and pouring down his *spoil* he put on the shroud and commenced cracking his hickory nuts. Presently as the clock was about to strike nine the sexton's boy came to ring the bell. He knew of the circumstances of the old miser's burial, and on seing a being in white sitting on the steps of the church cracking hickory nuts, he fancied the old miser had '*riz*.' He was seized with such a fit of affright that he dropped his lantern and ran home as quick as his legs could carry him. 'O father! father!' cried the boy in consternation, 'the old miser's riz, and there he sits on the meetin' house steps, cracking his hickory nuts!' 'Go up fool, and ring the bell.' ''Tis true as I'm alive—there he is, all in white!' 'Go up and ring the bell, I tell you—don't be around here with your nonsense.' The boy started again, and again he saw the apparition, and ran home to his father's bedside full of consternation. His father had been for a long time a cripple and bedridden. ''Tis *sartin* as the world, father,' again exclaimed the affrighted boy, 'and if you won't believe me, if you will get on my back, I will carry you there, and show you to your satisfaction.' The old man's curiosity was a little excited, and to gratify the boy he consented. The boy accordingly started with the old man on his back and a lantern in his hand. On approaching the church the being in white became apparent. Presently the boy stopped with his burden in utter amazement. They heard the apparition asking in deep sepulchral tone, 'Is HE FAT? Is HE FAT?' Almost chilled with terror the boy dropped his father, exclaiming 'Try him yourself, for all I care!' and sped for home, and his crippled father was not slow at his heels."

The old man's story, although I cannot convey the manner and effect, produced wonderful effects and much applause.

It being now about nine o'cloek, and the task about finished, we all partook of a plain and quiet feast of doughnuts and cheese, butternuts and apples, then came the cider and "Rose Bub"—then Dan and I lay hold of our instruments—then the floor was cleared and the dance began again. It will be sufficient to observe that the spirit of the jig, the fandango and the rigadoon, were never more inspiring, never more irresistible. Indeed, even so grave and modest personages as Dan and myself were irresistibly drawn into the giddy m zes, and our feet and our fingers, our bodies and our whole souls, were entirely engrossed in the remaining business of that evening. The "paring bee" broke up at three o'clock.

The following morning I was aroused by the following exclamation. The speaker was a Scotchman, employed about the premises as a "hired man." An adequate supply of skillful and reliable negro field and domestic labor, is out of the question in this State, at least it is not strange that the embarrassments of the farming community and the discomfort of the domestic circle seek expression so often through the press and in social intercourse. The evils are great beyond endurance almost, and a remedy is sought by displacing this old negro element, by white emigration. (I beg pardon for digressing.) "God's sake, sir, the de'il to pay wi' us a'! the cows tails are a' tethered thegither in the barnyard!" "What?" cried the *snoozy* landlord, a short, "fat, oily looking man." "Gang ye out wi' me and ye wad see sic sair witcheraft hae been ganging the nicht. The pigs i' the garden—the oxen o' the corn, and the deil take me, gin the horses heads arn't a' whar their tails should be;" the stalls. I overheard some unconscious oaths that slipped through the teeth of the old fellow, relative to "paring bees," and barely had time to get up before I espied him riding at a furious rate, with an ox goad in hand, in the direction of the cornfield, although it was late in the season, he still had some "lopped" corn standing out. He routed the

cattle away in that quarter, even before the Scotchman could get into the field. He then put spur for the barnyard and dashed on with such vigorous speed that the Scotchman afterwards declared, "the deil o' bit could he keep sight o' him." Five cows were drawn together in the center of the barnyard, and a line passing through their noses would have formed the periphery of a circle or rim of a wheel, of which their bodies were the radii or spokes, and the extremity of their tails gathered into a knot the center or hub. The landlord in the plentitude of his zeal was about charging upon the captives, with the fury of a second Hector before the walls of the Ajaxes. But his charger bolted, unequal to the desperate onset, and the old man thereby was thrown high upon his horse's neck. The steed not relishing the manner of taking his seat there, so suddenly reared that the man was thrown back upon the crupper. Fancying this a species of impertinence, the indignant horse kicked up so high and lustily, that the hero was shot off in a tangent, and made a lodgement upon the horns of one of the captive cows. She, not savoring the ponderous burthen any more than Esop's bullock did the gnat, gave him a toss to that other extremity by which she was joined in fellowship to her four companions. Then he came to the earth with severe contusions, and the cows, continually stepping about, and backing in, trod upon his members, and exceedingly aggravated the melancholy nature of his condition. But the undaunted hero, with "passion still strong," raised himself upon one elbow—then drawing from his pocket a barlow knife, a "many-year'd" companion, he slyly reached up his arm and severed the gordian knot! The glad quadrupeds, like wild birds freed from bondage, scampered off in every direction, much to the disparagement of the barnyard fences. The landlord recovered, and fancying the spirit of his horse I purchased the animal. It was then that I obtained that high, dry shod, and independent situation, for which I have so strongly expressed my partiality. I left the "Travelers' Home" the same day, and shall long treasure its pleasing associations. In the course of the afternoon I reached Owensboro. The country through which I passed was quite hilly and woody; soil rather damp and cold; timber, walnut, maple, gum and poplar, the best I ever saw; my way was muddy, wild, and sometimes without a semblance of a road. No stages run north through this section of country.

(*To be continued.*)

Pen Illustrations of the Drafts.

FULL CLARENCE.

Illustrated on Plate I.

On this plate we present the reader with an original design, in which are represented the principal points of novelty now found in vehicles of this class. Our artist has so well performed his task in the side elevation that very little explanation is needed to enable the builder to go on and transfer it to the black-board. The details we give below may aid the workman in the construction, and are such as cannot well be represented in a drawing.

The width across the body, in the widest part, from outside to outside, should be about 54 inches; across the back, 43 inches; measured across the two front pillars, 43½ inches; circular front in the line of the door, 21 inches; across the boot, 31 inches; turn-under of the door pillars about 5 inches; back quarters at the belt-rail, 25 inches; width of door, 25 inches; and width of seat, 18 inches.

There are now so many colors used in painting, that it appears like supererogation in us to attempt to give anything of the kind. We may, however, add that generally both the running gear and body are now painted brown, with three lines stripe in deep orange color for the former. For trimming use brown satin or Bismark. Price from $1,700 to $2,000.

LIGHT PHAETON.

Illustrated on Plate II.

This design represents a very stylish description of carriage for the Central Park, or other uses required in a family equipage. The construction is very simple, and therefore need not be given in detail here. A cant suited to this carriage will be found on page 150, Volume IX., of this magazine. Wheels, 3 feet 3 inches and 4 feet high; hubs, 4¼ by 7 inches; spokes, 1⅛ inches; rims, 1¼ deep; tires steel, $\frac{5}{16}$ by 1 inch. Trimming should be a dark blue cloth, or some color not easily affected by the weather. Price of the phaeton, $900 to $1,000.

BRACKET FRONT COAL-BOX BUGGY.

Illustrated on Plate III.

Our readers will, doubtless, be well pleased with this design from "our own artist." The seat, it is true, has a foreign *look*, but in this case serves a good purpose, making the buggy appear much lighter than it otherwise would, if paneled in the usual manner. The mouldings are glued and nailed according to the white lines shown on the side elevation. A groove ploughed on the under side, over the rocker, with a round-faced plane, would improve it very much, and make it show off more elegantly when completed. The remarks made in relation to painting and trimming the "scroll coal-box buggy," on the next plate, as well as the size of wheels and price for building, will apply to this vehicle equally as well. Price $450 to $475.

DOG-CART PHAETON.

Illustrated on Plate III.

This dog-cart phaeton, with back seat to fold in, and hung on four elliptical springs, is light enough for one horse, but generally two are used. This vehicle is not designed for hunting purposes, as might be inferred from the name, but for pleasure. Wheels, 3 feet 4 inches and 3 feet 10 inches high; hubs, 4 by 6½ inches; spokes, 1⅛;

rims, $1\frac{1}{4}$; tires, $\frac{5}{16}$ by $\frac{7}{8}$ inch. Painting, black or carmine for the body, and cream color, striped red and blue, for the carriage part. Price $450 to $500.

SCROLL COAL-BOX BUGGY.

Illustrated on Plate IV.

WE have no hesitancy in pronouncing this one of the prettiest designs yet given to the readers of carriage-building literature anywhere. The side elevation, if given a little swell, would much improve the job, and show off the scroll finishing to better advantage. The wheels in this instance are 3 feet 11 inches and 4 feet high; hubs, $3\frac{3}{4}$ by $6\frac{1}{2}$; spokes, 1 inch; rims, 1 inch; tire, $\frac{3}{16}$ by $\frac{7}{8}$ inch.

Paint on body English patent black, carriage part lake or Quaker green, finishing with a three-line stripe, formed by drawing a three-eighth inch stripe, and afterwards a red narrow one over it, in the center, when the first gets dry enough.

The most popular trimming is now blue cloth, ornamented with stitched patent leather in place of lace. A city made buggy of this kind costs $450 to $475.

COAL-BOX ROAD BUGGY.

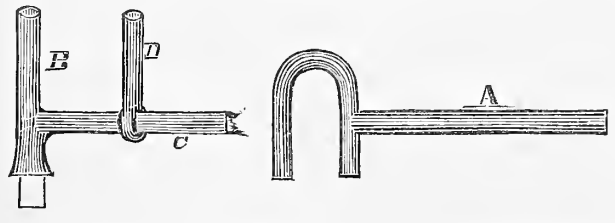
Illustrated on Plate IV.

OUR design represents a very fashionable kind of light buggy for the road, which must meet the wants of the public, and prove satisfactory to our patrons. The side scrolling, of course, is done with moulding, nailed on and glued to the panel. Wheels 4 feet and 4 feet 1 inch high; hubs, $3\frac{1}{4}$ by 6 inches; spokes, $\frac{3}{4}$ inch; rims, $\frac{7}{8}$; steel tire, $\frac{1}{8}$ by $\frac{3}{4}$ inch. Price of buggy, $325.

Sparks from the Anvil.

IMPROVED BENDING IRONS.

MR. EDITOR: Thinking I might interest the "Sons of Vulcan" who read your interesting Magazine, I take this opportunity for placing before them what I deem something new and useful, and have transferred to paper a set of bending irons, which are the first I ever saw, although they have been in use in our shop for some time.

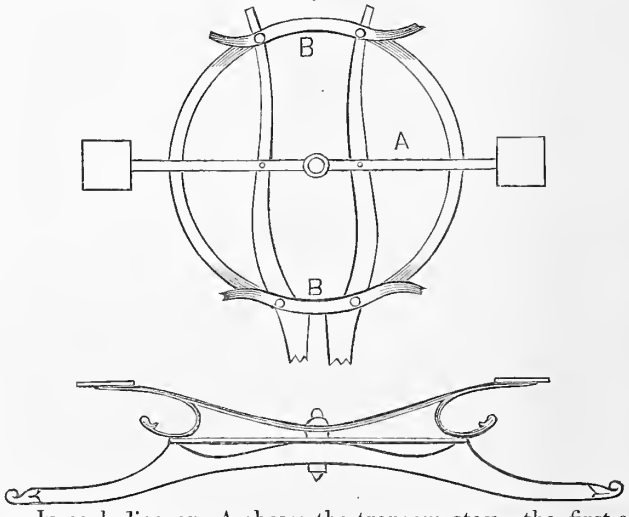


A shows the hand bending lever. The upright in B is forged solid with the arm C, at right angle. This arm C should be swaged oval, for the purpose of keeping the sliding iron D in its place, whenever it is set for either a larger or smaller iron, or for long or short sweeps. If made in this way only one set of irons will be needed for each forge, and these may be formed heavy enough for bending the heaviest coach irons, while they will also answer for the lightest skeleton buggy.

SON OF A SON OF VULCAN.

TRANSOM STAY.

THE transom stay is a decided improvement on the wooden bed, for it not only looks much lighter when applied, but also raises the body higher without presenting the clumsy appearance attendant upon the old way of construction, with wood only.



In each diagram A shows the transom stay—the first a bird's eye, and the second a vertical view—which can be raised or lowered to suit the height of the front of the body. In using this stay in place of wood, no furchells are required, the front and back stays being bolted on the fifth-wheel, as shown at B B.

DETERMINATE STRENGTH OF SPRINGS.

ONE great disadvantage under which carriage-makers labor, is the want of a definite rule by which to regulate the strength of springs for carrying a given weight. Thus far this matter has been left very much to conjecture, the result of which in many instances is, they are either too light or too heavy for the uses intended, causing complaints deep and loud from many customers, which, in all instances, might be avoided.

In such a table the number and width of the steel, as well as the length and number of the leaves employed, should be given, opposite which the weight such a spring will bear should be set. The weight of the body and the passengers being known, we could doubtless more readily accommodate our work with more suitable springs than is now done in our guess-sort-of-a-way. If our readers will give us some information on this subject, we shall take pleasure in publishing it.

TO LOOSEN SCREWS AND NUTS.—When you find screws and nuts have become fast from rust, pour on them a little kerosene or coal oil, and wait a few moments until they become soaked with the liquid. When this is done they can be easily started, and the bolt saved.

Paint Room.

ON THE SCIENCE OF COLOR.

BY B. N. BENSON.

The results which I have endeavored to deduce from the study of the prismatic colors are fully confirmed by all sorts of experiments made with the colors of pigments. For instance, we may test the colors of pigments with the prism in a beautifully simple way. We have merely to cover a small part of a strip of white paper with the pigment, and view it over a dark cavity through the prism, and we see the spectrum of the pigment-color adjoining to that of the white, and detect at once the rays which are absorbed or extinguished by the pigment, and those which it sends to the eye, to which its color is due. Thus, with respect to yellow, which many will still maintain, I suppose, to be a primary color, unconvinced by the experiments on the combination of the prismatic rays (which show that the best yellow is produced by throwing together all from the first red to the last green ray); if we analyze the color of aureolin, of chrome yellow, or of king's yellow, or the petal of any bright yellow flower, we uniformly find that the better and clearer the yellow, the more perfectly the object reflects all the red and all the green rays, absorbing only the blue. Hence, if blue is a primary color, it is difficult to see how it can be supposed that a color produced by all the other rays of the spectrum is not made up of both the other primaries combined, whatever those primaries are. Some strips of paper, colored in parts with different pigments, will be found on the table amongst the objects for prismatic observation.

Again, we may determine correctly all the intermediate colors between any two given colors, and ascertain the accurate mean between two given colors, without the slightest difficulty or possibility of error, by the beautiful method which was first used by the celebrated Lambert in the last century, and which I have, in my late treatise on the science of color, endeavored to improve and apply to this purpose. We have merely to hold a slip of clean polished glass, perpendicularly, between spots of the given colors, so as to see the near spot reflected from that part of the glass through which we see the other spot. If spots of white and black are placed opposite to each on alternate sides of the given colors, the position of the eye, in which half the light is reflected and half transmitted, is readily found, and the result there observed must be the mean of the colors. When the reflection is more oblique, the reflected light will be in higher proportion than the transmitted, and the contrary with a less oblique reflection.

Those who suppose that they can get the colors intermediate between the colors of two pigments by mixing the pigments, should compare the results obtained by that fallacious method with those obtained by this elegant and easy experiment. Gamboge and Prussian blue, for instance, make, by mixture or superposition, a green darker than either the yellow or the blue of those pigments; the scientific method gives, as their intermediate color, a gray of mean brightness, in agreement with the results obtained by our experiments on the combination of the prismatic rays. So, also, it does with the colors of king's yellow and cobalt, or lemon yellow and French blue or ultramarine.

If we avail ourselves of the well-known property of Iceland spar to give double images of two colored spots, and arrange the spots so that one image of both shall fall together, which is easily done, we obtain the same results. And so, also, if we excite the sensation of the two colors in rapid succession on the same part of the retina, as by the well-known method of rotation. But neither of these methods is so convenient in practice as that of the slip of glass; and I only mention them to show that, in whatever way we can mingle two different color-sensations, we obtain the same results. Small spots of the colors of vermilion, emerald green, and cobalt, of verdigris, rose madder, and king's yellow, with the requisite appliances, have been prepared for the purpose of illustrating these methods of finding their means; and any one who will examine the matter will see that the latter three pigments are very nearly complementary in hue with the former three; that is, the means between vermilion and verdigris, between emerald green and rose madder, and between cobalt and king's yellow, are very nearly neutral grays. The results of all our experiments with colors of pigments, therefore, plainly agree with those of our former experiments on the combination of the prismatic rays, and confirm the opinion that red, green, and blue are the primary, and sea-green, pink, and yellow, the secondary colors.

In perfect agreement with the facts I have stated about the complementary colors, are all those apparent changes of color which are perceived when the retina, having been strongly excited by some one or other color, becomes less sensible to it than usual, and every object to which we direct the eye appears, therefore, more or less tinged with the complementary color, as if a wash of that color had been laid over it. For it is always found that in an eye excited by red, by green, or by blue, objects appear tinged with sea-green, with pink, or with yellow; and the reverse; and that by intermediate colors intermediate effects are produced.

I am aware that some of these effects have been otherwise described by several writers: it is usual, for instance, to hear it said red tinges the adjoining colors with green; but this is not correct, unless the one be a pink-red or crimson, and the other a sea-green green. So, again, it is usual to say that blue and orange mutually deepen each other; but for this to be true, the blue must be of a sea-green blue or azure hue, and the orange must be yellowish.

The most careful experiments, made by looking steadfastly at spots colored with those pigments which best represent the principal compounds of the prismatic colors, and brilliantly illuminated upon a black ground, and then suddenly directing the eye to a perfectly neutral gray ground, will always clearly show the gray surface darkened and modified in hue in accordance with what I have already pointed out as the real or natural complementaries. Thus, an eye affected with bright red or scarlet, like that of vermilion, turns the gray into a grayish sea-green of the hue of verdigris; one affected with green, like that of emerald green, turns it a grayish pink, of about the hue of rose madder; one affected with blue, like that of cobalt, turns it into a grayish yellow, of the hue of king's yellow, and the reverse. The same effects are seen in the shadows cast by a sunbeam which has

passed through strongly-colored glass, upon a gray surface otherwise illuminated by a neutral light, and in many other ways, if due precautions are used. And no doubt the peculiar improvement in depth, which is evident in truly complementary colors when viewed in juxtaposition, the eye glancing rapidly from one to the other of them, arises from the same cause. It is evident, therefore, that the eye itself is so constituted as to agree in this respect with the deductions of science concerning the actual relations of colors.

The attempt to reconcile these obvious ocular effects with the common doctrine as to what colors are complementary to each other, has led some to regard the deep prismatic blue, which Newton called indigo, as being violet in hue, and the deep prismatic red as being an orange red. It is a great incidental advantage in the system I advocate, that it abides by the invariable colors of the spectrum as the standard by which all the colors of natural objects are easily tested; for if we depart from these, we may widely alter the hues of our simple colors one way or another, and be quite uncertain what is right, having nothing but the general vague idea of redness, blueness, &c., to guide us. The terms used to distinguish colors are among the most indefinite in all languages; and the loose way in which they are applied, and the different meanings attached to them by different authors, would lead one to suppose that our color-sensations are so different in different persons, and so variable in the same, that they are more fanciful than real, and that no certainty is attainable in them. Yet, in fact, if we except the comparatively few persons who are only capable of the sensations of yellow and blue, and those whose eyes are less sensible than they should be to red, there is a wonderful uniformity and certainty in the sensations excited by light. Only let the rays which enter the eye be the same in quality and quantity, and let the eye be in the same normal condition, without any present or very recent strong excitement, and we may rely upon the results being the same.

(*To be continued.*)

PAINTING ON A ZINC GROUND.

THE HUB, after copying our article in a former number of this Magazine, under the above heading, adds the following on the subject:

Articles of zinc may be painted with a permanent coat, by previous immersion in a bath of 100 parts of water and 5 of sulphuric acid, which oxidizes and roughens the surface. After a few minutes take out and expose in the air to dry, and in two days brush over with spirits of turpentine, then let dry and paint.

ROUGH STUFF.

OUR cotemporary, *The Hub*, furnishes the following receipt for mixing rough stuff:

20 lbs. English filling,
5 lbs. oil lead,
3 pints Japan gold size,
2 quarts American varnish,
½ pint boiled oil,

Mix with a little turpentine, and but a little is required to give it proper consistency.

DIRECTIONS IN USING WOOD-FILLING.

PUT one coat on bodies, and two on carriage-parts.... To hasten the process, the excess left on the surface of the wood, may be wiped off with a cloth. This may save two or three days' drying....To facilitate the spreading on a cold day, warm just sufficient of the article for present use—no more, lest in cooling, it gets too thick for further use....The filling is not intended for open grained timber, such as ash, &c., without a previous coating of paint.

Trimming Room.

A NEW MODE OF FASTENING CUSHIONS.

MR. EDITOR: I send for insertion in your Magazine, a new plan used for fastening cushions to the seat, and superceding the old fashioned straps, with knob in front.

The plan presented prevents the cushion from moving in any direction, and even checks the thief when taking that which does not belong to him. This cushion can only be loosened by those understanding the *modus operandi*.

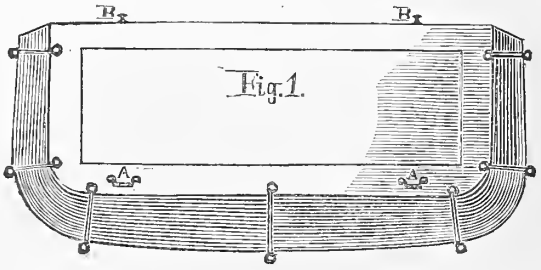


Fig. 1.

A A in Fig. 1 represent two one-inch check-loops screwed to the seat bottom, two inches from the back side and six and a half from the ends. B B represents two knobs, driven into the front of the seat, as in this instance, or may if chosen, be driven on top, hidden by the cushion. C C (Fig. 2) are two hard pieces of leather stitched upon

Fig. 2.

the inside, with the ends of the straps, D D, upon the outside of the cushion bottom. E E show two hard leather checks, stitched fast upon the outside of the cushion, through a piece of leather on the inside.

I hope I have been sufficiently explicit to make myself understood as regards the manner in which the straps are secured to the cushions, and also as to how they are fastened on the seat bottom. I will now proceed to fasten the cushions. First, take the ends of the straps, D D, and pass them through the check-loops, A A, then pass the ends through the leather checks, E E, draw the straps through and button the ends on the knobs, B B. This done the cushion will be secure. Should the fall be made

fast to the cushion, then insert a couple of india rubber button-holes in the fall, buttoning the fall over the straps.

"YOU KNOW."

WHO FURNISHES THE POLE STRAPS?

A SUBSCRIBER in California writes: "Will you please inform us through your Magazine, which should furnish the breast-straps, the carriage-maker who sells a buggy and pole yoke, or the harness-maker who sells the same man a set of harness; or what is the custom in the best shops?"

The custom in New York, has always been—within our recollection—to charge extra for the "pole straps," both among carriage and harness-makers. The straps are not considered as part of the carriage. Sometimes we have furnished the straps by a special agreement when taking an order, not otherwise.

Editor's Work-bench.

SPECIAL NOTICE TO OUR FRIENDS.

WITH the publication of this (June) number, we enter upon our eleventh volume, under encouraging prospects. We have not only the sympathy of the bosses, but likewise many of the journeymen; and hope to still further deserve their support the coming year, by renewed labor in making our work generally acceptable to all classes of the trade. With this object in view we have engaged extra assistance in the special departments, and trust that our long experience and practical knowledge of the wants of carriage-makers will secure for us ample reimbursement of the expenses now entailed upon us.

To still further enhance the usefulness of this work, we are ready to receive proposals from literary men in the trade, for such contributions as will be suitable to our pages, for which, if accepted, we will pay a liberal price. We are fully convinced that there is much latent talent among us, which only needs a little stirring up to bring it to the light. Some of this, though unpolished, may yet contain valuable ideas, which after a little revision, may be sent abroad with great profit to our readers. We hope, then, no one will excuse himself with the declaration that he cannot write, but go to work, *and try what can be done.*

There are but few shops in which, if there is a little exertion used, a club cannot easily be made up. By clubbing, the subscription to this magazine is brought very low. As an encouragement to extra exertion, we offer any individual, who will send us two names with nine dollars, chart number six, as a premium for his trouble; for three names with thirteen dollars, chart number seven, just published. This we have described elsewhere. Send all remittances by postal order, or draft on New York. Country checks, which some are thoughtless enough to mail, only entail on us express charges for collection, and are not otherwise available. You had much better draw the money and send it in a registered letter.

And now, hoping that *all* our old friends will continue their patronage another year, as well as exert themselves to induce their acquaintances to subscribe, we leave the matter in the hands of the public, trusting to hear from it at an early day.

TOURNEY AT THE GYMNACLIDIUM.

ANOTHER of the popular entertainments of the Pearsall Brothers, with the velocipede, took place a few evenings since, at the Apollo Buildings, Broadway and Twenty-eighth Street, New York. The anouncement in the papers promised that an elaborate gold badge, costing $100, should be awarded to the most graceful and expert rider, the ladies present to decide by vote who should have it. This notice had the effect of drawing together a very respectable audience of ladies and gentlemen, who judging from the enthusiasm manifest on the occasion were highly delighted with the performances.

The entertainment began—accompanied by music—with the entrance into the arena of ten expert velocipedists, riding in line around the room, cutting circles, the german role, and other manœuvres extremely picturesque, and decidedly pleasing to all present.

This was followed by the entrance of Miss Pearsall, a sister of the proprietors, who having mounted one of the "Peerless velocipedes" lately invented by B. S. Lawson, of this city, accompanied by a brother, made a variety of graceful circles around the room, to the no small satisfaction of those present. This machine is admirably adapted to ladies' use, and can be ridden in an ordinary walking costume, without exposure of the foot and ankle more than when on promenade. The rider on this machine sits as comfortably as in a carriage, and manages the machine very easily, the motion being controlled with greater facility than ordinary velocipedes. This exercise was succeeded by some expert movement—among them turning in its length between two chairs—on the "Pearsall snake velocipede by one of the Pearsall Brothers. As we have already furnished an engraving of this machine in our last volume, we shall not undertake to describe it here.

Next came the game of tag, which requires much experience in order to succeed. Four machines entered into this sport, some of the movements, the performance of which

furnished much amusement, cannot be well described on paper.

Thus far the programme was duly carried out, but when it reached "the ten entries for the gold badge" it was discovered that Mr. F. A. Carpenter, of the American Velocipede Club, was on the lists, and since no knight present was bold enough to tilt with him, this part had to be omitted, and Mr. Carpenter who had already come upon the floor was called off again. Considerable conversation followed to try and induce the defaulting members to enter, but without success, cowardice prevailing over gallantry. Mr. Carpenter having been awarded the badge without competition, completed the riding singly, in which he exhibited some remarkably dexterous, skillful, and graceful manœuvres. Up to this time, near ten o'clock, the entertainment had been of the most exciting and enjoyable nature, but this hiatus in the sport threw a "wet blanket" over the whole affair, and left nothing more for curiosity to feed upon.

THE VELOCIPEDE WAR.

SINCE our last report the velocipede contest has taken a very interesting shape. Mr. Calvin Witty, who having purchased the Lallement patent, threatening at the same time to sue everybody who did not comply with his demands, has himself been sued for infringements on the patent taken out by P. W. Mackenzie, of Jersey City, N. J., January 19th, 1864, and since purchased by Stephen W. Smith, of this city. Those, therefore, who have paid Witty a royalty, will now run the risk of having to pay over again to somebody else, and those who have taken our advice and paid nobody, will at least have the satisfaction of knowing—when this war ends—that they will only have to pay once for each machine made.

We have not heard of any case where Witty has sued those he threatened in his circulars. In view of this circumstance, Smith very properly inquires: "If Mr. Witty has a patent he has any confidence in, why does he not do what any sensible man owning a patent would do at once, commence suits against the infringers;" and goes on to say: "I hazard little in saying he will not do it. At any rate, nothing would please me better than for him to attack one of my licenses. Of the considerable number of responsible manufacturers of velocipedes whom I have licensed, all but one held licenses from Mr. Witty, and as, after searching investigation, they have since taken licenses under me, it is an evidence of the opinion of practical men as to the relative value of the patents." Mr. Smith threatens to sue others who infringe on his claims until they "learn he has some rights they are bound to respect."

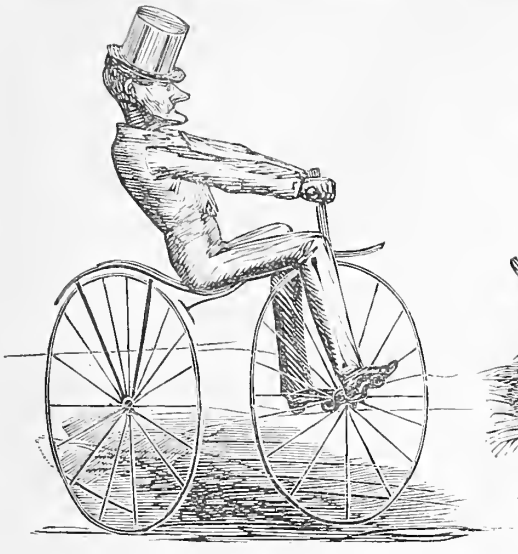
The position appears to be this: Smith thinks his patent on the "cantering horse," will cover every point of importance in the by-cycle, and having a sufficient stock of pluck and funds, he intends to fight it out on that line, until his claim is admitted—*providing he succeeds.* This, however, is a matter for a jury's decision, which it will be well for our friends to await before parting with their money. Probably, before the matter is settled in the courts, the velocipede fever will be over, and the *plaything* laid aside. If not, and business continues good, the manufacturer will be in funds to settle the damage without much trouble, and save the interest on a large sum besides.

This whole thing has amused us not a little. As soon as the velocipede had become "a fixed fact," generally adopted, Mr. Witty, with visions of greenbacks in his head, starts off for New Haven, to Lallement's assignee, Carroll, and purchasing "all his right and title" to the machine, comes out with a circular, demanding a royalty, under penalty, from every maker of the by-cycle in the country. For a short time the thing proved a mine of coin, but all of a sudden, out comes Smith with his claim—having *lain low* all the time—and stops the *mining* business altogether, except as far as the lawyers are concerned, by citing Witty before the courts to settle for his trespasses. As if this was not a sufficient punishment for his offense, the Hanlon Brothers, too, must follow Smith's *suit*, with another on their part for still further infringements, said to have been made by Witty on their patent. If then, Witty's *prospectising* proves unsuccessful, finally, who will pity him?

GOOD SENSE OF THE GERMAN WORKMEN.

THE principles of co-operative industry which has accomplished so much good in Germany by elevating the working classes in the social and political scale, is threatened by a serious inovation, by the introduction of the English system of strikes. Heretofore, German workmen, guided by sound, economical principles, as a rule, have never lent themselves to strikes, which war against capital—their best friend. The co-operative system, as established by Mr. Schultze Delitzch, the apostle of labor reform in Germany, is based upon the correct assumption that the only means of elevating the workmen in the social and political scale is by increased industry and increased economy of wages. Hence, a German workman is never found standing idle for weeks and months in the vain hope of improving his condition. He works for whatever he can get, and shuns idleness as a calamity.

At the late convention of workingmen in Berlin, the company of machinists introduced the question of resorting to strikes as a weapon for the workmen against capital. M. Schultze Delitzch denounced strikes as a weapon that would recoil on those who resort to this means of improving their condition. He showed that the plan of



Mr. Spannenagle attempts a three mile heat on a velocipede inside of three minutes.

Encounter's unexpected difficulties.

The result.

workingmen saving money for the benefit of men on strike, was a preparation for social war, in place of social peace. Strikes, by suspending production, limited the amount of commodities which men could receive for their wages, and under the fallacy of high wages obliged them to perform more work for fewer articles of necessity or comfort.

These views sustained with great ability, were so favorably received that the Workingmen's Congress refused to have anything to do with the strike system. Outside of England strikes have not been popular with the workingmen of Europe, and in England and America there are indications of a sober second thought, which may soon render them obsolete, and tend to the future welfare of the working classes, and the bettering of their condition in life.

CHART NUMBER SEVEN.

We have just published a very fine new chart, which is not only useful, but will be found highly ornamental in the coach-maker's office. The price, single is $1. Where numbers five, six and seven are all ordered together, the price of the three—all of uniform size—sent by mail, or sold at the office of publication, will be only two dollars and twenty-five cents—over seventy-five designs of vehicles for about three cents apiece!

The latest chart, number seven, contains twenty-four designs, besides an expensive engraving of a "School of Practice on the Velocipede," seven by nine inches, not only useful, but amusing. On this chart are eight no-top and seven top buggies, four Rockaways, one Victoria, and one Phæton, one Landau and several Velocipedes, the whole making the most desirable and fashionable chart yet published. Please forward your orders for it, with the price.

COVERS AND BOUND VOLUMES.

We have a few Volumes Ten, bound in muslin, gilt, for sale, price $6; when sent by mail, $6.40; and a small stock of covers ready for binding, price 65 cents at the office, or 75 cents when mailed pre-paid. We can yet furnish a few sets of this magazine from the commencement. Price for the ten volumes, cloth, gilt, $40. Sent by express on receipt of price.

These volumes contain about 450 designs of carriages, and over eight hundred inside engravings, added to which there are many pages of letter press of practical matter, much of which possesses *a living interest*, rendering them invaluable as books of reference in the coach-maker's office.

Those who began their subscription in the middle of the last volume, and wish to obtain the back numbers to complete them, can, as advertised last month, get them if wanted, for thirty-five cents each, if applied for at this office in person or by mail.

LITERARY NOTICE.

The Hub is the expressive name of a lively little monthly sheet, published by Messrs. Valentine & Co., the Boston varnish manufacturers, and devoted to the interests of the carriage and car shops, as well as furnishing a medium for the diffusion of information, relative to the permanent wood-filling, now so generally popular with the trade. The third number (May) is now before us, which, besides containing a variety of useful matter, has a working drawing of the "Saratoga Phaeton." Subscriptions 50 cents a year. Our readers will do well to read the advertisement of this firm in our advertising pages.

HEARSE PLUMES AND TRIMMINGS.—A great drawback among our friends in the country when building hearses has been the difficulty of getting trimmings, &c. This difficulty will now be overcome. Among our advertisements the reader will find the card of Messrs. Shannon, Miller & Crane, a reliable house, having a fine stock of every requisite needed in that line. Any order addressed to them will be filled promptly and faithfully.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKER'S MAGAZINE.
NEW YORK, MAY 18, 1869.

Apron hooks and rings, per gross, $1.25 *a* $1.75
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb, 8c.
Axles, plain taper, 1 in. and under, $5.50; 1⅛, $6.50; 1¼, $7.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $7.50; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half pat., 1 in. $10; 1⅛, $11; 1¼, $13; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅝ in., $11.00; ¾, $11; ⅞, $12.00; long drafts, $2.50 extra.

☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.

Bands, plated rim, 3 in., $1.75; 3 in., $2, larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Bolts, Philadelphia, list. 30 off.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1, ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 18 *a* 23c.
Burlap, per yard, 14 *a* 16c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, $1.75 *a* $2; velvet, $2.75 *a* $4; oil-cloth, 45 *a* 70c.
Castings, malleable iron, per lb, 15c.
Chapman rubber, $2.50 *a* $3.00, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb, 35c.; netting, per yard. 8c.
Cotelines, per yard, $1 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $15 *a* $22.
Dashes, buggy, $1.75.
Door-handles, stiff. $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.75 *a* $2.
Enameled cloth, muslin, 5-4, 40c.; 6-4, 75c.
Enameled Drills, 48 in., 55c.; 5-4, 50c.
Do. Ducks, 50 in., 75c.; 5–4, 70c.; 6–4, 80c.

☞ No quotations for other enameled goods.

Felloe plates, wrought, per lb., all sizes, 20c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.50 *a* $2.00.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.

☞ For a buggy-top two pieces are required, and sometimes three.

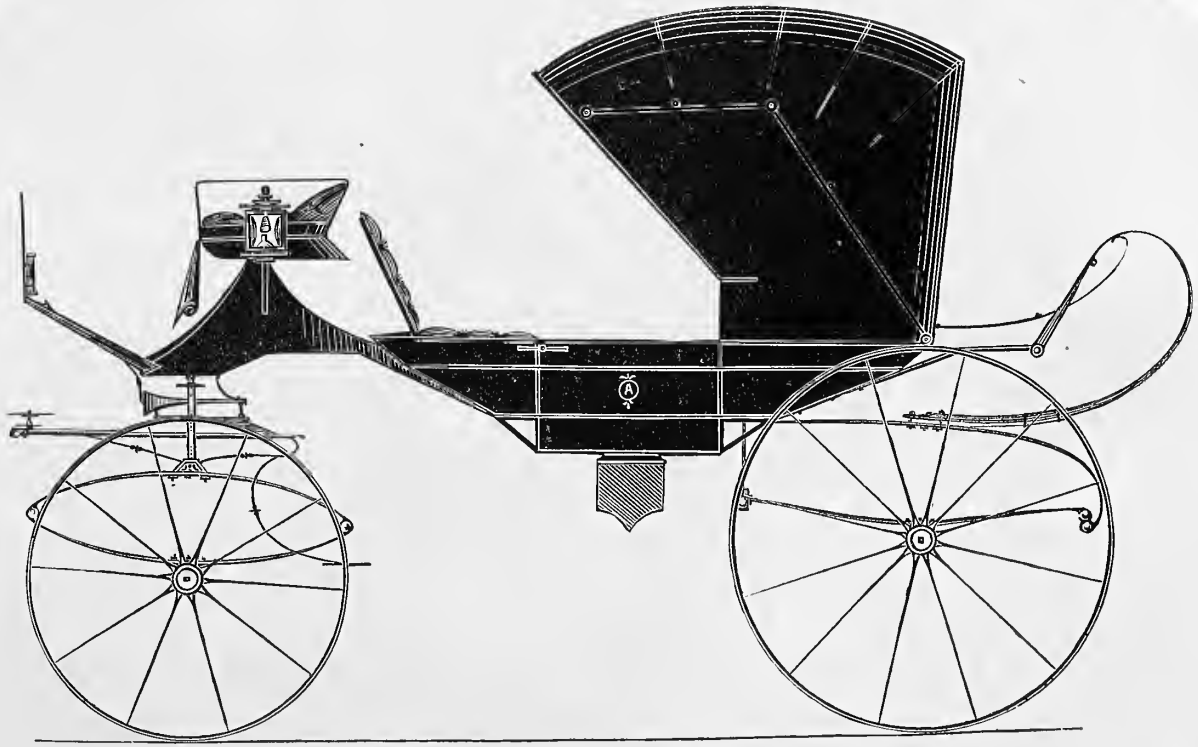
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb, 25c. *a* 30c.
Hair, picked, per lb, 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $2.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60 *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach, $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 28c.; railing do. 26c.; soft dash. No. 1, 15c. *a* 16c.; do., No. 2, 14c.; split do., 15c. *a* 17c.; No. 1, top, 27c.; enameled top, No. 1, 27c., do., No. 2, 25c.; enameled trimming, 25c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates. (See Advertisement.)
Oils, boiled, per gal., $1.25.
Paints. White lead, extra, $14.00, pure, $15.00 per 100 lbs.; Eng. pat. black, 30c.
Permanent wood-filling, $6 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Sand paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's 30 per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Serims (for canvassing), 16c. *a* 22c.
Seats (carriage) $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 16c.; bright, 18c.; English (tempered), 21c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.

☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.

Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.

☞ For extra hickory the charges are 10c. *a* 12½c. each.

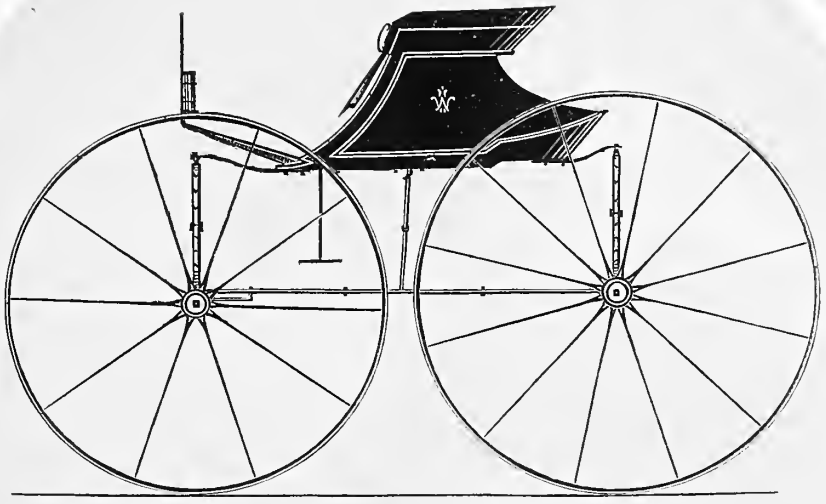
Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 15c.; 1-4 x 1, 15c.; 3-16 x 1 1-8, 16c.; 3-16 x 1, 16c.; 3-16 x 7-8, 17c.; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 34; 1-16 x. 3-4, 23.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35, gold.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close-plated nuts and rivets, 75*a*80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2.c. Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 60c
Twine, tufting, pr ball, 50c.; per lb, 85 *a* $1.
Varnishes (Amer.), crown coach-body, $5.00; nonpareil, $5.25.
Do. English, $6.25 in gold, or equivalent in currency.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to 22.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.



SIX-PASSENGER PARK PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

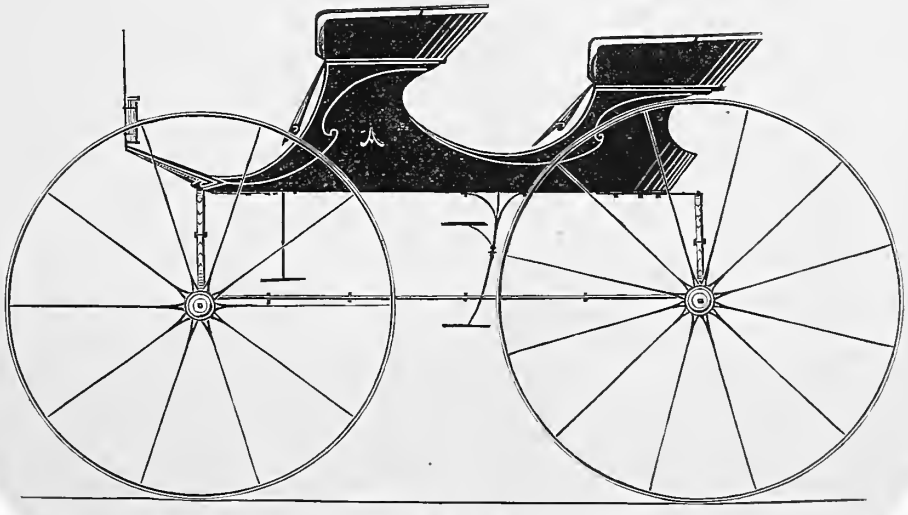
Explained on page 24.



ROAD BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

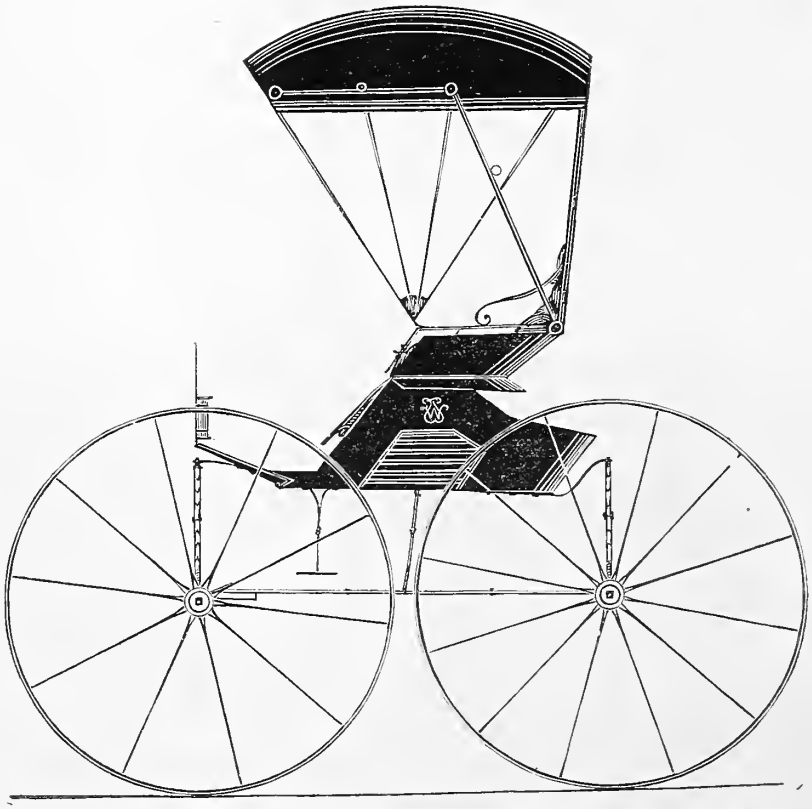
Explained on page 24.



SCROLL PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

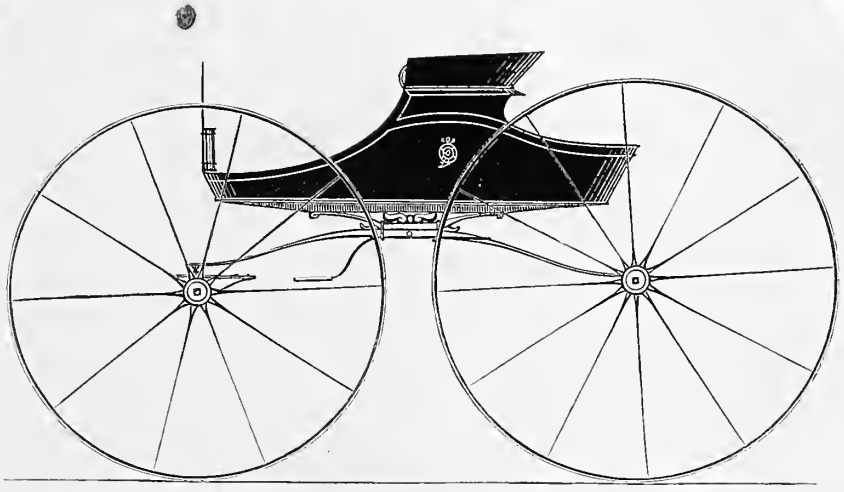
Explained on page 24.



SHIFTING-TOP BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

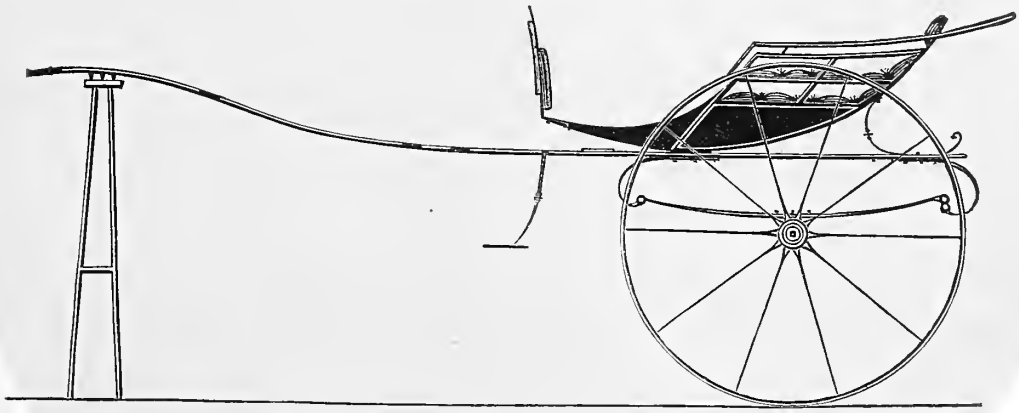
Explained on page 24.



GAYLORD'S IMPROVEMENT IN CARRIAGE SPRINGS. — ½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine

Explained on page 24.



LIGHT TWO-WHEELED TUB. — ½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 24.

THE NEW YORK
Engineer's Magazine

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XI. NEW YORK, JULY, 1869. No. 2

Mechanical Literature.

ADVENTURES OF THREE JOURS.

BY H. S. WILLIAMS.

Chapter II.

Pretty clever sort of a fellow I judge, exclaimed the General as he turned away from the party and proceeded to the bar *alone*. This rather singular act surprised the party, for previous to this he had never *smiled* without inviting the crowd to join him, and they began to whisper among themselves, 'the General is about broke, else he is getting on a bender.' The latter supposition proved correct, and by ten o'clock that night he was talking more, laughing louder, and making more noise generally, than all the other passengers on board combined.

There was one consolation, however, the deeper the potations, the merrier he grew. And now his liberality returned again. He invited anybody and everybody to drink with him, not only once but several times, and if one refused he seemed to feel really aggrieved. And then he appeared to be everywhere at the same time; in the captain's office, insisting on that worthy taking a drink; at the stove expounding law to the Illinois Judge; down midships, instructing a gaping crowd of cabin boys how to cook beef-steaks and set tables properly; in a word, he was in all places, and talking on all subjects.

"The General is in a splendid condition to have some sport out of now," remarked a small quiet looking man who had come aboard at Cairo, as he drew his cigar from his mouth, and emitted a dense volume of smoke that curled in graceful circles above his head.

"Fine subject for a green-court trial."

"That's so," cried Loring, "let's have him arrested and tried for disorderly conduct. Judge, issue your warrant."

"And I'll serve it," returned the first speaker, "I'll return by the time you can get it ready," and he disappeared in his state-room. Going in the clerk's office, the Judge soon wrote the necessary paper, and just as he returned to the stove, the gentleman who offered to serve it, re-entered by the front door, dressed in a complete policeman's suit, then worn by the force in New Orleans.

"All ready," he exclaimed, "you see I am a regular *star*, Judge; been up river on duty. Guess I'll surprise the old General somewhat."

Just then the object of their remarks joined the group.

"You see Judge," he said, "the best way to render justice to all mankind in general, is for all mankind to do justice to everybody generally. But let's go and take a drink."

"One moment first," exclaimed the detective. "Your name is —"

"Norval, on the Texan hills my father feeds his flocks. Won't you take a drink too?" and the General put his arm familiarly on the detective's shoulder, while a loud laugh followed his rather apt quotation.

"But I am serious sir," exclaimed the detective, turning full upon him, and taking good care to display the star on his breast. "As you see, I am a policeman, and I hold in my hand a warrant for your arrest."

"Don't say so," returned the General in a voice that gave greater evidence of intoxication than before. "Never were so surprised in my life. Warrant for my 'rest, eh! well, what's the 'fence?"

"That you will learn hereafter; for the present, consider yourself arrested."

"Certainly, I'll 'sider myself 'rested," and he sat down heavily in the nearest chair.

"Keep the prisoner closely guarded until we are ready for him. In the meantime we will proceed to open court in the barber's shop," cried the Judge, as he proceeded thither, followed by the whole crowd.

It did not take long to open the Court. The Judge took the barber's chair, seats were arranged upon the left for the twelve jurymen, and a small table on the right served to accomodate the counsel, a prosecuting attorney was appointed in the person of a lawyer present, and then the prisoner was ordered in.

"Engage a lawyer and defend yourself," said the Judge with becoming dignity.

"Jus' so, Judge," returned the General steadying himself against the back of a chair. "Let's see, my friend," continued he, turning towards Gloner. "You appear like a lawyer, so I'll engage you; and as I always like to keep square with the world here is your fee. Jus' take it, and take good care of it," and unfastening a huge leathern belt from about his waist he handed it to Gloner.

"Although no lawyer," replied Gloner as he took it, "yet I'll do my best for my client."

"Jus' so. Well, you see I am a kind of a lawyer, so I'll help you." "Judge, proceed," and he seated himself, but not without some difficulty.

"Is the prosecution ready for the case?" asked the Judge.

"What case is this to be tried in?" asked the General. "Is it the dative or vocative? I prefer the vocative —*fiat justicia ruat cælum*—which for the special edification of the eminent counsel on t'other side, as well as your honor, I will freely translate in the vulgar tongue—'Be sure you'r right, then go ahead,' as my lamented friend Davy Crocket used to say."

"We will first proceed to empannel a jury. Mr. Sheriff call the names of the jurymen," said the Judge.

As the fifth name was called, a young beardless youth stepped out, when the General exclaimed.

"I 'ject to that boy."

"The boy as you call him is of age," returned the Judge, "but state your objections."

"I only want to ask 'm one question."

"You have the right, proceed."

"Young man," said the General, looking him as straight in the face as possible, and in a tone so serious, that under the circumstances it was really ludicrous, "young man, if you bought a hoss, and paid a big price for him, and found out afterwards that he was balkly, or was spavined, or had the heaves, or something of that sort, what would you do with him?" "I 'd trade him off as soon as possible," replied the youth. "Young man, your head is level," returned the General. "I withdraw my 'jection, proceed."

The Jury were all empanneled, after an indefinite deal of amusement, through all of which the Judge and General maintained the utmost gravity.

"Mr. Prosecuting Attorney, you will now read the charges preferred against the prisoner," said the Judge, and the gentleman acting in that capacity rose and did so, wherein the prisoner was accused of willfully and deliberately transgressing the laws of good society, by getting under the influence of liquor, and disturbing the peace and quiet of the good steamer Champion, etc. "What does the prisoner say? guilty or not guilty!" "The prisoner pleads not guilty," answered Gloner. "That's right my boy," answered the General, patting his counsel familiarly on the back. "Not guilty! we'll stick to that all day, and all night too, for that matter."

"Then the case is ready to proceed," said the Judge. "Mr. Sheriff call up the witnesses."

The scene that followed beggared description; in a word our humble abilities would fail to do it justice. Our friend Gloner distinguished himself by an argument that was pronounced superior to the prosecuting attorney's; or, as the General said, "he sawed that fella' up completely." It was proven by several witnesses that the General was one of an invited party to take the first drink on board the boat, which fact Gloner used with great effect. But it was reserved for the General to cap the climax in his closing speech. It was full of wit and odd sayings, and then delivered in such a style, as to cause peal after peal of laughter to ring through the boat, in which the Judge himself was forced to join on two or three occasions.

"May it please your honor and gentlemen of jury," said he, steadying himself by the back of his chair, "I had the very honorable privilege of being born in a poor man's house, and I've held my own well ever since. But, poor as I am, it is my right as an 'merican citizen of the State of Texas, to have justice done me the same as though I owned the Missisippi river, and all the land 'tiguous thereto. Ar'nt that so, Judge?" The Judge, on thus being appealed to, nodded assent. "Jus' so," continued the General. "Well, our mutual friend, Blackstone, says: law is equity, and equity is law, and that bein' the case, I don't care which I take in mine, law or equity, it's all the same to me. May it please 'yer honor, and gentlemen of jury, no doubt, but what you've heard of the man of whom it was said, what he did'ent know would'nt make a primer. Well, I've always been looking for that man; always had a laudable cur'osity to see him, and I'm happy to say my efforts have been crowned with complete success, for I've found him at last; there he sits, Judge, your pros'cuting 'torney. Why, he knows more law than Coke or Lyttleton ever dreamed of, and as for Dan'l Webster, why, in the classical language of the backwoods, 'he's no whar.'"

For a full half hour he addressed the Judge in the most serious manner, which only rendered it so much the more laughable, when turning to the jury he exclaimed, "And now, gentlemen, I wish to say a few words to you, and will preface it with the language of a well known and very practical friend of mine, who, under very similar circumstances, exclaimed. 'Pity the sorrows of a poor old man, whose trembling limbs,'" here he let go the chair with one hand, and attempted to make a gesture, when he lost his balance and slid down, chair and all, but even then he did not lose his wits but drawled out,—"have borne him to the *floor*." After the laughter had subsided, he continued, without attempting to regain his feet. "May it please yer 'onor, I'll submit the case without further argument." "Then I'll proceed to charge the Jury," said the Judge. "All right," returned the General. 'I don't care how much you charge them, jus' so its enough to pay for drinks all round."

"Gentlemen of the jury," commenced the Judge, "I have noticed that from the beginning you have paid this case that serious attention which its importance demands, therefore I shall address you briefly. Nothwithstanding the very ingenious defense of the prisoner's counsel, as well as the witticisms of the prisoner himself, to draw your attention from the main points at issue, I doubt not but you will remember in your verdict that the charges on which we are trying the prisoner are simply these,—getting intoxicated, and disturbing the peace and quiet of the steamer Champion."

"You all understand what peace and quiet is, so I will not dwell on that part of the charge; you also know what getting intoxicated is."

"You can bet all you've got on that, Judge," muttered the General.

"And," continued the Judge, "if the prisoner has done these things, you cannot do otherwise than bring in a verdict of guilty. Therefore, to sum up all the evidence, you have only to decide, has the prisoner got drunk, and has he disturbed the peace and quiet of the steamer Champion? You can retire and agree upon your verdict."

"We have already agreed," exclaimed the foreman.

"Silence in Court," returned the Judge. "Let us have the verdict."

"Guilty!"

"Then it only remains for me to pronounce the sentence," said the Judge. "It is the order of this court"—

"That we all go and take a drink," muttered the General, striving to regain his feet.

"Silence," cried the Judge. "It is the order of this court that the prisoner be confined in his state-room for twelve hours and fed on"—

"Calves' 'ead soup and soda-water," put in the General.

"Exactly," said the Judge. "Mr. Sheriff, see the sentence duly executed," and in ten minutes more the General was snoring in utter oblivion, between the sheets of his own bunk.

It was along in the wee sma' hours of morning before the court broke up, so that there was a late breakfast on board the Champion next morning; in fact, the General did not show himself until just before dinner, when Gloner and Loring, being on the hurricane deck admiring the scenery and breathing the fresh air, now warm and balmy, met him, looking as sober and serious as though there was not a particle of fun in his composition.

"Well, General, how do you feel by this time?" asked Gloner.

"I tell you what it is," returned the General, in his most serious tone, "Last night I imagined I owned this steamboat, but this morning I feel as though I don't own a dug-out. But, by the way, did I give you a belt last night?"

"Yes."

"You took good care of it, I hope."

"I threw it in my trunk when I went to bed, and have not thought about it since. I'll go and get it."

He soon returned bearing the belt in his hand. The General seized it, and exclaimed, "you cannot tell how much I owe you. All the fortune I have in the world is in that belt, over ten-thousand dollars."

"I had no idea it was so valuable," exclaimed Gloner, "Else I would have slept but little last night. Don't get on another spree, I beg of you."

"Oh! there's no danger now, I only take these spells about once in three or four years. This one has left me all right; the last one cost me a cool two thousand. But there's the gong, let's go down to dinner, for my long fast has made me ravenous."

That evening Loring get off at Vicksburg, and Gloner was left to pursue his journey to New Orleans.

The scenery soon became more interesting. After leaving the bluffs at Natchez, the low land bottoms of Louisiana stretched out to the west, then came the land with immense sugar plantations beyond, as level as a floor, with huge brick sugar houses in the center, now in active operation,—then came Baton Rouge, with its capitol on the river bank, a neat and beautiful building surrounded with a yard that presented a very wilderness of roses in full bloom, and, finally, the Cresent city itself, low and level, but presenting a magnificent appearance from the decks of the steamer; all these were objects of the greatest interest to our hero, and fully occupied his time and attention. It was but little after sunrise when the Champion affected a landing among hundreds of other boats that crowded the levee two and three deep for miles up and down the river; thousands of stevedores with hundreds of deck hands were busy rolling bales of cotton and "toting" sacks of corn from the boats just arrived, and thousands more were rolling and toting freight on the boats getting ready to depart; and then the language spoken, he could hear representatives of every nationality in the world, and he could see people from every part of our country. The regular "down easter" with his peculiar nasal twang, the rough western backwoodsman with his ungrammatical provincialism, the aristocratic southerner with his cool quiet tone, and the cosmopolitan with his smile, and nod, and pleasant word for everybody, all met there on the crowded levee, where the commerce of a dozen States was transacted.

"What hotel do you stop at?" asked the General of Gloner, who was leaning over the guards looking eagerly at the bustling throng below him.

"I have no preference for hotels, as this is my first visit to the city," he answered.

"Then I should like to have you go to the St. Louis with me. Most of the crowd go to the St. Charles, which is the most popular, and the most noisy. But for quiet homelike attention and refinement, give me the St. Louis."

"Then I'll go with you, of course; for you could not have given it a better recomendation."

"Very well; let this boy have your baggage, he will take it up all safely; and, Jim," he continued to the boy, "if you get there first, present my compliments to the landlord, and tell him I want my old room for a day or two. We will walk Mr. Gloner, it is not far, and then I want to drop in at a barber's as well as take a cup of *café* at the French market."

"All right," exclaimed Gloner, and in five minutes' more they were walking along the crowded sidewalks of the crescent city, while the perspiration stood in large drops on his forehead, in great contrast to Gloner's condition a week previous. At the French market they drank their coffee, and such coffee as Gloner was forced to confess he had never tasted before. Perhaps this was owing in part to the fact that it was served by one of the prettiest and most vivacious of French girls, to whom the General seemed well known, and who was, of course, a great favorite. Then, after half an hour at a French barber's, they passed up the broad steps of the St. Louis, and in a few minutes more were seated in the quiet of their own room.

(*To be continued.*)

TREATISE ON THE WOOD-WORK OF CARRIAGES.

INTRODUCTORY.

(*Continued from page* 5.)

It is well to remark here, that from this epoch, the English carriages began to be distinguished by great simplicity of construction. From this reason they singularly contrasted with the French carriages which were profusely ornamented. For daily or common use, the former were certainly preferable to the latter, and those reasons alone suffice to explain their popularity.

We have under our eyes a treatise upon the construction of carriages, which in reality is only the market prices, published in 1796, by William Felton, manufacturer of carriages in London. This work is illustrated with a great number of carriages of which the bodies, aside from the form of some parts, are absolutely made like those in our day. The panels are framed in simple mouldings, where there is only a little square amulet as they are

usually made at the present time. As to form, one detects in this treatise some models styled Louis XV. This proves that if the French are sometimes inspired by their neighbors over the British Channel, these latter make equally as much of equivalent inspiration on their side.

The treatise of Roubo and the *prix courant* of William Felton bring us down to the French revolution, which marks for the progress of our coach making a time of considerable interest. This industry, like many other arts of luxury, was totally deserted. Resumption took place only at the accession of the imperial government, with some old veterans, who in the meantime had forgotten more than they had learned. The first empire, as one knows, was more occupied in forging cannon than in constructing carriages, and this industry, from the first rank that it held under Louis XV., descended to the fourth. English coach-making, flourishing in a country then privileged by its geographical situation and by the harbors and surroundings that assured it the empire of the seas, continued to be developed, and naturally became first in rank. The two cities, Hague and Brussells, had, as late as 1830, in carriage-making, a greater renown than Paris.

It is only since 1830 that Parisan coach-making has visibly and really regained the ground it lost after 1790. Joinery, however, had not made much progress. Its execution continued to run in the groove of routine. We have under our eyes two drawings of models for a body, executed by a professional wood-workman named Depuis, who, in 1830, gave evening lessons after his day's work, and who passed for one of the most clever in the art of drawing. These plates demonstrate beyond doubt that not only their author knew nothing of drawing, but that be was also ignorant of the first elements. The methods that he taught have nearly all been everywhere practiced by the most advanced.

The joinery of carriages, then, remained plunged in the shades until 1839, the epoch when one of our contemporaries, M. Lablot, twenty-five years old, discovered a practical and very expeditious method for the sweeping of the surface of bodies, by which one can determine with exactness in regard to the structure and the various points necessary. M. Lablot teaches his method in the atelier (workshop), when he works, as in a class he teaches in the evening, with an ardor and enthusiasm which is convincing that he has made a useful discovery. The classes that he formed, of which a great number in turn became teachers, rapidly propagated his method, which was immediately introduced throughout Paris, and since practiced by all joiners in coach-making.

This method of Lablot's is the same in truth which is demonstrated in the work by Roubo, pages 524 and 525, for outlining the lengthened dimensions of the boundary of a berline (carriage); but at that time, the treatise of Roubo was not generally known, and had it been, it is not certain that it would have fond interpreters capable of utilizing the principles it contained: moreover his method is some what confused in this particular, and the reader who had not a profound knowledge of the art of drawing, would comprehend nothing. M. Lablot has, therefore, the double merit of discovery and of teaching; and the year 1839, when he began his career, is a remarkable epoch in the progress of wood-work in carriages.

The sweeping of the surface of bodies (*ecisses*) as it has been taught by M. Lablot, is a part of the art of drawing, especially for joinery in carriages, as we have not encountered similar constructions elsewhere, as joinery in building, carpenter work and naval construction. This part is also most important in carriage making, as the good or bad form of the body is solely due to the surface. It is, moreover, most facile to comprehend; every demonstration for the construction limits, or radiates, from one point.

When there is shrinkage in the surfaces, the application becomes a little difficult. The shrinkage perhaps divides or may be distributed in two ways, one in quantities proportioned to the greatness of the surface, or in varied quantities. The first can receive but one solution, but. the second admits of an infinity, following the law assigned to the variable quantity. M. Lablot has given also upon this matter some very interesting demonstrations; but the theory of shrinkage, as being generally well understood, has need of being more thoroughly developed than it has been, even to this present day.

The operations upon straight lines and the plans which constitute the most important part of the art of drawing, capable of being applied to carriage joinery, have not yet been demonstrated with the systematic order which distinguishes the most of scientific works of our day. a fault, well understood, of a work upon the subject. It is this void which our treatise is intended to fill, and under this relation we hope that it will render some service even to the most experienced workmen.

Although most bodies may have their surfaces limited by curved lines, these lines are not the result of geometrical drawing; they are simply designed as the contour of an ornament, with no law save that of taste. Certain methods of unity, or leveling, in lines used in architecture, cannot be utilized at all in carriage joinery, such for example, as the harmony of an arc of a circle of a small radius with a straight line whose radius is of infinite greatness.

We shall indicate the means of drawing some curves in the third part, notably, the ninety degrees (*quart de nonante,*) made use of in naval construction, and which should also be applied in drawing the lines for the sweeps.

(*To be continued.*)

THE CARRUS OF THE ANCIENTS.

TRANSLATED FROM THE GERMAN OF GINZROT.

THIS is the common two wheeled cart, which was destined only for the conveyance of (heavy) loads, merchandise or baggage, and not for that of passengers. The term "Carrus" is not of Latin but foreign origin, for the ancient Roman writers did not employ it; but Julius Cæsar in his Commentaries mentions them in the acceptation of the common word "Plaustrum," used in bringing up the rear-guard and military equipments of the army. Hence, they merely answered the purpose of munition or baggage-wagons to the troops and were designated by the Romans under the appellation of "Impedimenta." The term "Impedimenta," however, is not exclusively applied to the baggage, but likewise to the baggage-wagons themselves, as well as to other conveyances following the army. We nowhere find an allusion to their having been employed as a means of locomotion to passengers in town or country, and whenever Cæsar

alludes to the train of women and children in the wake of the baggage, he invariably mentions the "Rheda" along with the cart; for the former were four-wheeled carriages with a box in the shape of a parallelogram, in which from six to eight persons could be seated, as I shall presently show. The Barbarians (for this was the title bestowed by the Romans upon all foreigners) took their wives and children with them to the field, (the latter always following the army in wagons, which they at night placed in such a manner as to afford them the protection of a redoubt). These people were incited to fresh deeds of valor, in knowing that they had their family [loved ones] with them.

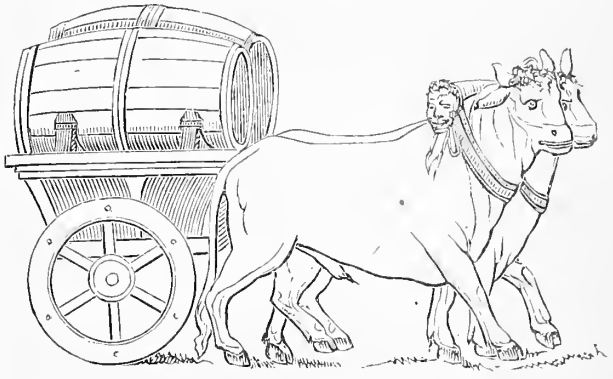
These "Carri" were perfectly well adapted to the narrow defiles of the country, inhabited by the Helvetians; for this very reason they were provided with a narrow gauge, to enable them, and probably their four wheeled "Rheda" also, to pass with safety the numerous mountains passes; for it is evidently easier to construct vehicles to suit the condition of the roads than it is to make the latter adapted to the construction of the vehicles. Julius Cæsar often mentions those "*Viis angustis*" or narrow passes, where one cart could scarcely pass after the other, a fact, which is more minutely illustrated in his Bell. Gall., Lib. I., Cap. 6, and in his Bell. Hispan. Cap. 6. In this case, therefore, the bread-gauge track would have been impracticable or very inconvenient. Cæsar (Bell. Gall., Lib. I., Cap. 6) says: "the road leading through the country of the Sequani, betwixt Mount Jura and the river Rhone, was so narrow and difficult to travel that scarcely a single "Carrus" was able to pass over it."

This word (Carrus) may be indiscriminately used in the masculine or neuter genders, and accordingly we say, "Carrus or Carrum." The term seems to be of Gallic origin, and no doubt should read "Karr or Karre," inasmuch as the Swiss of the present day—descendants of the ancient Helvetians—name their wagons, "Karren." The French, in some sections of their country, as in Burgundy and the "Gold Coast," where the primitive wagon of the Gallicans (called, Char à banc—wagon provided with benches) has been retained in use, still name their wagons, Chariot-car, hence we find Cabriolet, Cart, Chariot, etc. With the old Teutons, a light sporting carriage was called a "Karrette," and a show, or parade-wagon Karratsch. In Teutonic ballads of the chivalrous age, we frequently meet with this word. Now-a-days, an old fashioned, lumbering vehicle is derisively styled an old "Karrete." In the Breton tongue the Carrus is called "Kar," and in the Chaldaic tongue "Carron." With the English people, a Karren is a Cart, a Wagon.

Cæsar thought proper to retain the popular nomenclature and to Romanise the same in giving it a Latin final syllable, as the Romans were wont to do. Fabricius, in his "Bibliographia Antiquaria," ridiculously retraces the origin of the term. "Carrus to *Quadrus, quasi a quatnor rotis.*" The Carrus differed from the Plaustrum in the following particulars: the box or form could not be removed as in the former case, but was fastened upon the axle-tree; it lacked the broad flooring of planks or boards, which served as a receptacle for certain commodities, when the sides were removed; the wheels were higher as with the common Roman Plaustrum; they were moreover spoked and not solid like the Tympana, which are impracticable in mountainous regions.

There was another Carrus, the box of which was composed of planks. The wheels had eight spokes and were stellated; this Carrus carried casks, which the Romans, engaged in warfare, preferred to leather pipes, for the reason, that certain liquids, such as oil, wine or vinegar could be more conveniently and safely transported in them. Wine and vinegar, so eminently wholesome in hot climes, was served out in rations to the soldiers along with oil to season their greens (herbage) with. This cut is taken from Marcus Aurelius' Pillar, which bears numerous representations of baggage-wagons. The ancients were skilled in the art of sewing their pipes so tightly that no liquid could ooze out from them.

Herodotus, Lib. III., speaks of a sort of pipe or leather tube, which, owing to its width and tremendous length, may well be numerated here. The king of Arabia, yielding to the entreaties of Cambyses to supply with water the army of the latter on their march through the arid desert, caused huge tubes of raw ox-skins to be made in such plenty that he was enabled to conduct water from the Nile to immense reservoirs, built on the very outskirts of those desolate roads, which the army was to traverse, and at a distance of twelve days' journey from that river.

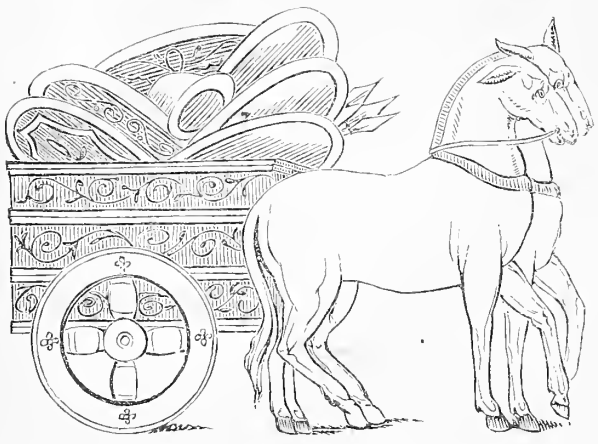


ROMAN WINE CART.

This cut represents a Carrus laden with barrels, lying on crossbeams or rafters; the wheels only have six spokes to them. The yoke being at both of its ends provided with carved lions' heads (a peculiarity quoted in a previous chapter on Yokes) deserves special mention. A well preserved illustration of the same may be seen on the Trajan pillar. Besides, as far as these two carts are concerned, we are at liberty to aver that that kind of casks was not such a rarity with the Romans as Herr von Caylus in his explanation would have us believe.

The next is an illustration of another Carrus taken from the Pillar of Marcus Aurelius. The wheels with but four spokes to them, are rather low; the box in parallelogram shape appears to be encompassed by wooden planks, with ornaments in the form of foliage engraved or painted thereon; the inside space is filled with bucklers and various arms.

This cart is drawn by mules. J. Cæsar in his, Bell. Gall. Lib. I., chap. 3, says of the Helvetians: they resolved to provide themselves with all that was necessary for conducting the campaign and to purchase as many "Carros" as possible. They were used for the conveyance of heavy burdens. Sisenna Histor. Lib. III. says: They pile up their baggage and shove their "Carros" into one another; and Cæsar de Bell. Gall., Lib. I., Cap. 24. includes the cart among the baggage. The Helvetians



ROMAN BAGGAGE WAGON.

followed with all their carts and piled up their baggage (Impedimenta) on one spot. From this, however, it is not to be inferred that with the Romans, non-combatants were not allowed to avail themselves of this vehicle for the conveyance of their ammunition and burdens; only they were more generally used abroad than amongst the Romans, with whom the "Plaustrum" was more in favor.

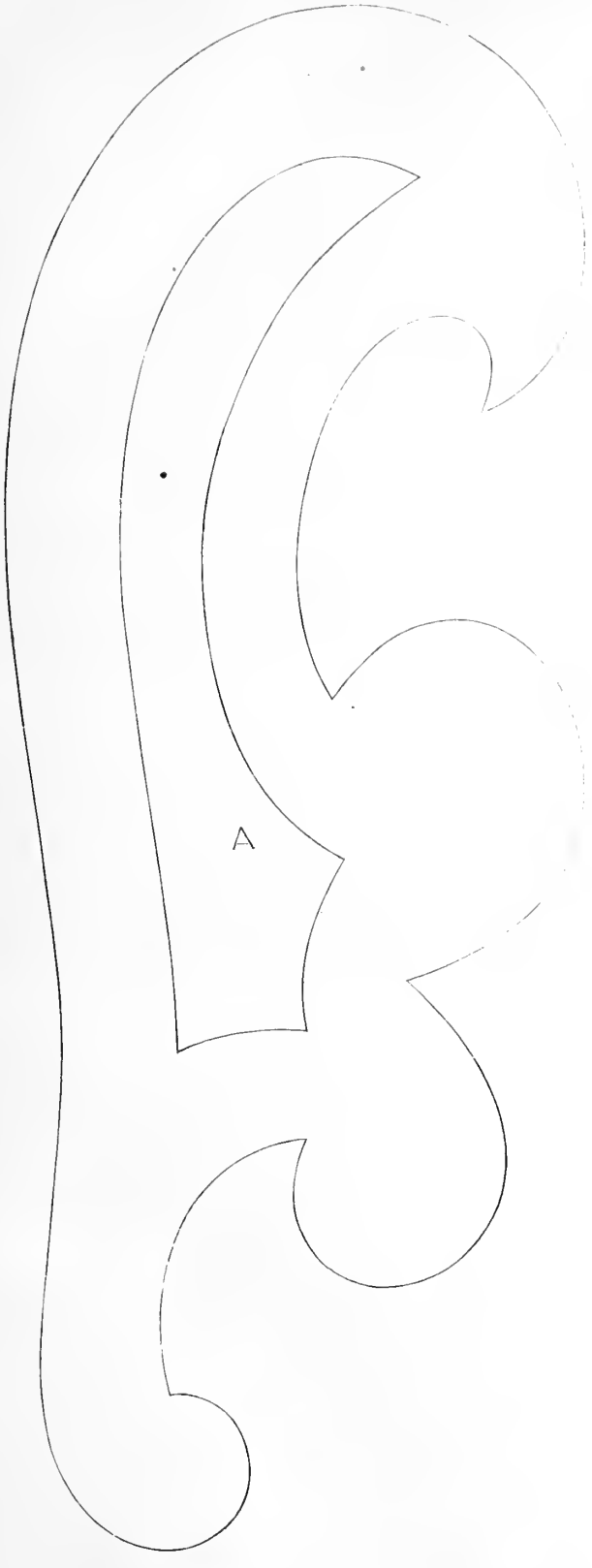
That the "Carrus" was not a four-wheeled carriage, as some are inclined to believe, may be gleaned from the "Codex *Theodosius de Cursu publico*," reading thus: The two-wheeled cart—the "Birota"—must not be laden with over six hundred pounds weight; and further (Leg. 47), where it is enjoined to load the body of the "Rheda" with a thousand pounds, and the "Carrus" with six hundred pounds, no more nor less. We should indeed judge rashly, were we to affirm that for carrying six hundred, more than two beasts of burden and one four-wheeled wagon was required. Three hundred pounds is a light load for a single ox or mule to pull, since any beast of burden may conveniently carry that much on its back. Carts were not only brought in requisition in war-times, but they were likewise used in time of peace on the roads, in the public service, to bring up ammunition for the troops, or the luggage of certain functionaries, who were entitled to the use of a car like the above. In order, however, to prevent an abuse on their part of this immunity, to the detriment of the indigent peasantry (they generally overloaded them), the weight of the load which they were permitted to take with them was fixed by statute, a step resulting in the prevention of arbitrary measures on the part of those favored way-farers, and in enabling the beasts of burden to get along without injury to themselves on the very worst kind of roads.

The above mentioned law, moreover, prescribed that public funds, and articles of value destined for presents (*largitionales species*), be no more carried indiscriminately on sundry conveyances or entrusted to the safe-keeping of an arbitrary escort or of the managers, but should be carried on vehicles adapted to such loads. The box had to be closed up all around, unlike those provided with wooden rails, sticks, or a bee-hive (the latter being often full of holes), in order to prevent the scattering of the money, in the event of one or the other of the money-casks or chests bursting open. A cart-load, like the above, was afterwards called, "Carrada," also "Carrata," French "Charretée." In an ecclesiastic register of the time of Charles the Great, we find: (*de foeno provendarunt Carrades XXX.*) there were sold thirty loads of hay. According to *Eckhardt's "Francia Orientalis,"* a cart-load in the eighth century was called Carica; old Teutonic, Fodar; hence we have "Fuder" of wood, wine, hay etc. The Spaniards call a load "Carga," the French "Charge" (Ladung, Last.). It is also used in the signification of "office." In time of war, when the carts, were slid into one another and placed as a bulwark around the camp (the way the Gallicans and Helvetians used to do, according to Cæsar), this was called a "*Wagenburg, Carrago* or *Carragium*," to which subject I shall recur in my treatise on War Chariots. According to Ammianus 31, the old (teutonic) Goths in their language, called the "Wagenburg" itself "Carrago." To transport a load was, in the Latin in vogue in the middle-ages, called: *Carriaginum facere;* Caretta or Carecta was the term applied to a two-wheeled cart (a quotation frequently occurring in the Magna Charta); and that of "Caruca" for a four-wheeled carriage. "*S. Carta de foresta* IX.: Henry III, §. 14, *et de nulla alia carecta vel Summagio aliquo cheminagium capiatur.*" "On no other cart or beast of burden shall my toll be levied." And in Magna Charta, A. D. MCCXVII., "*Pro Caretta ad duos equos* (*pro cariagio faciendo*) *decem denarios per diem pet er Caretta ad tres equos quatordecim*," ["For a two horse cart (*pro cariago faciendo*), ten denarius per diem," and for a cart with three horses forty denarius].

Since the "Carrus" was not used as a swift means of locomotion, but merely served for pleasure trips, it was generally (as a reference to all the cuts will show) hitched up with oxen or mules only and not with horses, which were commonly employed in drawing vehicles for passengers. The "Carrus" was put to another use in the conveyance, in the wake of an army of the "Ballisten" and similar heavy ordnance; for this reason these vehicles were styled "*Carrobalistas*," of which more in my chapter on War-Chariots. A number of by-words, as, *Carruca, Carrheda* or *Carreta, Carpentum* and others probably took their origin from "Carrus;" and although their shape in the course of time differed somewhat from that of the "Carrus," yet they no doubt, resembled it at first more closely. In quoting the word "*Carrus*," Matthew Paris says: none of our "*Balliven*" nor "*Vicecomes*," or any one else shall employ the "Carreta" for riding-purposes, and in the "*Magna Charta of king John*," Art. 20, said passage runs thus: "*ne Vicecome vel Ballivus regis vel aliquid alius capiat equos vel carrettas alicujus liberi hominis pro cariagio faciendo, nisi ex volutate ipsius.*"

In conclusion I think I am justified in saying that the "Carrus" had no "Tympana," but spoked wheels, which were better adapted for the passage over mountains and through ravines If this were not so, Cæsar would certainly have mentioned now and then the "Plaustrum" or the "Target-Wheel;" but nowhere in his work on the war in Gaul do we meet with any allusion to this subject. In the monasterial archives of the "Middle Latin Times," we frequently find the word "*Carrus funarius*," a low mason's or bricklayer's cart, which was hoisted by means of a pulley.

WHERE IS THE SCHOOLMASTER?—A "shingle" over the door of a carriage shop on Thirty-second street, in this city, reads thus: "Wagons of every *decrition*, made and repaired."



SWEEP FOR SCALE DRAFTING.

SWEEPS FOR SCALE DRAFTING.—V.

This month we furnish the reader with another pattern for making sweeps to use in scale drafting. How to transfer this to the veneer, cut out and prepare the thing for use, will be found on page 5. The space A, should be cut out entirely. If properly made from rosewood veneer, it will answer your purpose as well as those found in the stores, and at much less expense.

SCREW-DRIVERS AGAIN.

Mr. Editor,—I find, in your last Magazine, some remarks from Mr. Peek, in answer to my challenge on the Screw-driver question. I am at a loss to decide whether he accepts my wager, or not. He seems to ask new terms, and claims it as his right, according to the code of the duellist. I do not see as that code applies to this case, but, rather, the rules of the debating club. The arguments upon both sides have been presented, and I am ready for the decision. If Mr Peek wants to present new arguments or evidence, I am perfectly willing that he should do so, and send as many screw-drivers as he chooses. But he says, "I have accepted his challenge." If so, let him send along the five dollars, and three dollars with it, to cover the three dollars I send with this, to pay subscription to *Scientific American*. My challenge still stands, with the addition of three dollars. I am ready for the decision.

Body-Maker.

[This article must close the discussion for the present. Should Mr. Peek comply with Body-maker's request, we shall submit the matter for decision, and, when made, publish the result.—Ed.]

SUMMER IDYL.

BY CARRIE M. WHITNEY.

Hush! hush! there is a trembling of melody sweet
Pulsing up from each hill side and leafy retreat.
A murmur, a breath, and a rustling of breeze,
Gently sighing about in the tender green trees.

A music of waters, like silvery bells,
Dripping down, drop by drop, in the deep, mossy dells;
The hum of an insect, the chirp of a bird,
The chatter of squirrels that can scarcely be heard.

There is a faint, subtle fragrance, a perfume of delight
Floating out on the air at the dewy twilight,
An odor from woodlands—a balm from the flowers,
Growing stronger and sweeter with swift coming hours.

Old memories awaken, old yearnings revive,
Absent faces come haunting, some dead, some alive,
Old footsteps reecho thro' the chambers of thought,
And hope sings again, by past failures taught.

O, dear summer voices, how welcome the strains
Of your wanderings, and echoings, and wierd refrains;
How soothing to spirits by sadness oppressed;
How grateful to hearts that are longing for rest!

While I listen, I dream of the far Summer Land,
Till *these* songs seem an echo of its dear, happy band;
I know that *there* Summers are fading and fleet,
And I 'm hast'ning to *that*, its immortals to greet.

South Adams, Mass.

Pen Illustrations of the Drafts.

SIX PASSENGER PARK PHAETON.

Illustrated on Plate V.

IN this instance the body is mounted upon scroll and C-springs back, and elliptic in front, making the carriage very easy riding. Our artist, with an eye to the fashions, has adopted the latest improvements from Paris, and accommodated them to American taste with pleasing effect. The sides are "set-off" with half-inch chamfered mouldings; width of body 50 inches; axles $1\frac{1}{4}$ inches; wheels 3 feet 3 inches, and 4 feet high; hubs $4\frac{1}{2}$ by 7 inches; spokes $1\frac{1}{8}$ inches; felloes $1\frac{1}{4}$ inches deep; tire $\frac{5}{16}$ by $1\frac{1}{8}$ inches. *Painting* for a vehicle of this description should be rich, without being gaudy, either black, blue or brown color, with two narrow over one broad stripe, the colors contrasting, with the ground color. *Trimming*, brown satin. The workman's price for building the body in New York is about $75. The price at which sold $1,500 @ $1,600.

ROAD BUGGY.

Illustrated on Plate VI.

OUR artist in his effort to produce something new, has given us something rather eccentric this time. Its oddity may perhaps recommend it some customer, which is often found the case. The side mouldings should be one-quarter of an inch wide, either rounded or chamfered, glued on and beaded. The rule for making this kind of seat will be found on pages 166 and 167, Volume X. Springs, 3 plate, $1\frac{1}{4}$, No. 3 steel, and 36 and 38 inches long. Wheels, 3 feet 11 inches, and 4 feet 1 inch high; hubs $3\frac{1}{4}$ by 6 inches; spokes $\frac{7}{8}$ inch; rims 1 inch; tires $\frac{7}{8}$ by $\frac{3}{16}$ inch. Making the body $14. Selling price of buggy $300.

SCROLL PHAETON

Illustrated on Plate VI.

This Phaeton, moulded as it is, in a novel way, makes a very pretty thing for summer driving in the Central Park, in pleasant weather. Drab corduroy of a fine quality makes a very good lining for open phaetons. If lively colors are ever required in painting carriages, we think this is an instance where such may be used to advantage. This being rather "an aristocratic" vehicle, should accordingly have a fancy finish. Wheels 3 feet 11 inches, and 4 feet 1 inch high; hubs $3\frac{3}{4}$ by $6\frac{1}{2}$ long; spoke 1 inch; rims $1\frac{1}{8}$; tires $\frac{5}{16}$ by 1 inch. The workman's charges for making the body is $25; the sellers price for Phæton about $500 with pole, or $460 without pole.

SHIFTING-TOP BUGGY.

Illustrated on Plate VII.

The coal-box still continues popular with the public, and is not likely to be discarded, although many predictions of this nature have been made. The cleft side is rather an old idea, but then it serves to relieve the body of that monotony found when the side panel is left plain. It is a common practice now to close the back of the body behind the seat by paneling. Wheels 4 feet, front and back; hubs $3\frac{1}{4}$ by $6\frac{1}{2}$ inches; spokes 1 inch; rims 1 inch deep. Price from $450 to $460.

LIGHT TWO-WHEELED TUB.

Illustrated on Plate VIII.

THESE "tubs" are well calculated for the ladies' amusement at a watering place, and no doubt will find favor with *the strong minded*, when going to the polls, electioneering —should "the tyrant man," ever accord them the privilege of voting. Wheels 3 feet 6 inches high; hubs 4 inches by 7; spokes $1\frac{1}{4}$; rims $1\frac{1}{8}$. Price of vehicle $225.

Sparks from the Anvil.

TEMPERING TAPS.

To give the correct temper to a tap or reamer is of the greatest importance to the blacksmith. A correspondent of the *Scientific American* says: "To accomplish this, let the blacksmith select his steel for the job, and forge the tap with a little more than the usual allowance, being careful not heat too hot nor to hammer too cold. After the tap or reamer is forged, heat it and hold it on one end upon the anvil. If a large one, hit it with the sledge; if a small one, the hammer will do. During this operation the tap will give away on its weaker side, and become bent. Do not attempt to straighten it. On finishing and hardening the tap it will become perfectly straight. If any are doubtful, a simple trial will convince them.

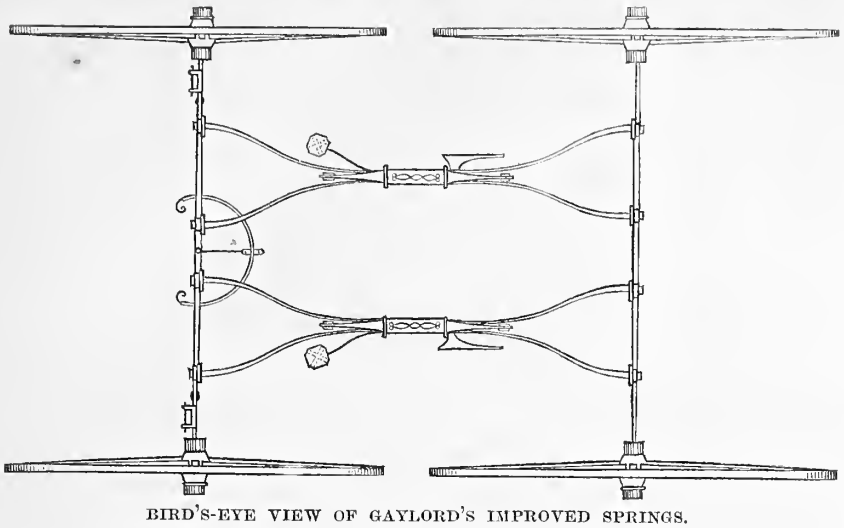
ERRATUM.

In the article on Improved Bending Irons given in the June number, at line eighth, instead of saying "this arm C should be suaged oval," it should read should be suaged *square*, and the upper end of B and D should be oval shaped.

GAYLORD'S IMPROVEMENT IN CARRIAGE SPRINGS.

Illustrated on Plate VIII.

On Plate VIII. we have given a buggy hung on a new style of spring, dispensing with the perch, although such has been used in connection therewith. The improvement sought for is a side spring of good style, much lighter than the common side spring, and more elastic than the half eliptic with side bars. This spring is very simple in construction, a pair being made of four steel bars, all shaped in one form. The bars being set edgewise in the center give strength with lightness, and the ends being twisted a quarter turn in opposite directions give elasticity, besides bracing sideways and acting as an equalizer when the load is accidentally thrown upon one



BIRD'S-EYE VIEW OF GAYLORD'S IMPROVED SPRINGS.

side. Should the vehicle be overloaded, the two bars forming a spring are pressed together, thus preventing injury from an overweight.

A top buggy with a full seat, on springs weighing only fifteen pounds, two seasons in use, has given the fullest satisfaction. A lighter one may be seen at the manufactory of Rufus M. Stivers, in East Thirty-first street, New York city, by those interested. This buggy was made by Mansuy & Smith, of Hartford, Connecticut, for the inventor, E. L. Gaylord, who is also the patentee, and will sell the whole right. Applicants wishing to purchase will please address E. L. Gaylord, Terryville, Conn.

Paint Room.

FINISHING COAT OF VARNISH.

Much has been written of late years on the subject of varnishing, and doubtless much more might be said to advantage, for it is still the fact that the cause of failure lies as often with the operator as with the varnish. This has been proved by experiment where different workmen have taken the article from the same can with quite different results. Probably no varnish sold in this country is of such uniform quality as the English, yet, nothwithstanding this, there are many persons who are entirely unable to lay a smooth coat of flowing varnish as it should be done. It is amusing to hear the excuses from some of these unskillful workmen. Not long ago we sent to order a genuine article, purchased in person from "the sole agent," which after being opened and tried by one journeyman was returned as spurious—only American imitation—put, up in English cans to make it sell. We might have been "stuck," but the can having been marked C. O. D., and the express company not having carried out our instructions, by allowing the can to be opened before collecting pay we threw the whole thing on its hands. The company therefore had to pay us, and as a last resort take the varnish back to the shop from whence it last came. Meanwhile another hand had been engaged, and a few months afterwards on visiting the shop referred to, we found the article all used, and it was pronounced the best English varnish ever spread on a job; the "sole" trouble being with the manipulator.

Success in laying varnish is very much dependent upon the quality of the brush. We believe it is conceded that the flat fitch or bear-hair brush, is the best fitted for laying varnish, and we think none exceed in make those furnished by Mr. Charles D. Thum, of Philadelphia, whose card will be found in our pages. These he warrants to stand, and they are so pointed that they may be immediately put to use, without previous wearing down in painting; a great advantage, since brushes filled with paint—as such unavoidably must be,—cannot be in the best condition for varnishing, afterwards.

In spreading, care should be taken to lay the varnish on as level as possible, and to cross brush the coat when finishing off. To insure success it is absolutely necessary that the brush should be held in the hand perfectly flat and carried over the surface as lightly as possible and make it smooth. Care should be taken to avoid moving the varnish on the under side, since if this is done, it is liable to lose the gloss, and entail much injury on the whole job. Young beginners, specially, are cautioned against letting the varnish run near the top or mouldings. Carrying the hand and brush over the center of a panel heavily, leaves too little varnish there and forces it to the top, bottom, and sides, where it inevitably runs and spoils the whole thing. To spread a nicely flowing coat is difficult with some, but should be the ambition of every painter to arrive at. Those who are competent to spread varnish well, with certain success, have reason to feel proud of their attainment, and as they ought, certainly will command good wages from their employers.

HALF-TINTS IN PAINTING.

The great difficulty in shading is the management of the half-tints. Any one can make an extreme shade of black; and if the right feeling for half-tints and semi-tones is not a natural one—something analogous to that of a good ear for music—it can be to a great extent acquired, though in some cases it will require a much greater amount of practical experience and observation than in others, before they begin to perceive the many varieties of tone which are spread upon the surface of an object, especially if it be an irregular one. But when we have to add color in connection with light and shade, we go further into a field of change and variety that is unbounded. And here is the test of the painter. It is the management of the minor tones which makes all the difference between a first-class artist, and a common country sign-painter. The latter may paint a red cow sufficiently well to answer the purpose of giving a title to the village ale-house.

We will grant that he has the ability to make a tolerable representation of the animal in outline, when he attempts to paint it he will do nothing more than to fill up the outline with red, and darken the parts in shade with black, because he can see nothing further: but the eye of the true artist would sieze upon the innumerable tints spread all over the surface—the various degrees of color

influenced by the position and strength of the light, some parts more brilliant, some more subdued, intermingled with grays of various hues in every portion—added to which are the reflections of color and light among the shadows, some warm, some cold; in short, to name all the changes and tones that would require his especial attention can only be done by him who is able to paint them. Here, then, is the secret why one painter is greater than another; and their comparative excellence is determined by their ability to perceive and represent few or many of the infinite varieties of tones scattered over every object in nature.

A NEW PAINT.

At a recent meeting of the French Academy, M. Sace called attention to the fact that tungstate of baryta forms an excellent white paint, which has as good a tone and depth as white lead, and has the advantage above this of not getting blackened on exposure to the atmosphere. Zinc white, which was tried as a substitute for white lead, has failed, he said, through wanting body. M. Elie de Beaumont remarked that if this statement was confirmed, it would be of great importance; for we have no need to employ special mining operation for tungsten, as this metal is commonly found in company with tin.

WOOD FILLING.

We are in receipt of a note from Messrs. Valentine & Co., stating that "in the Directions for using the Wood Filling we notice one inaccuracy which we fear may mislead some painters. You said that an open grained wood, such as ash, &c., a previous coating of paint must be used. In this you misunderstood us, for the Permanent Wood Filling is intended to penetrate the pores, and this it could not do if there was a previous coat of paint put on."

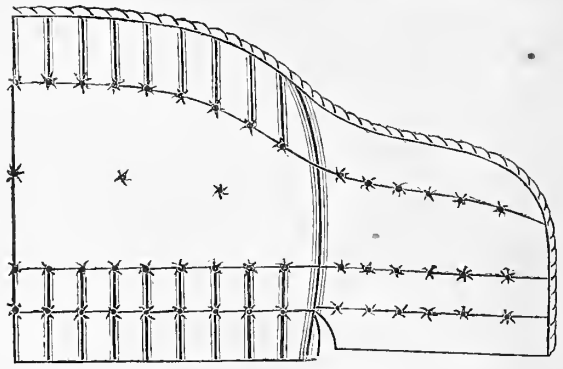
Trimming Room.

LANDAU LININGS.

Mr. Editor—The trimming of a Landau is a part of carriage building which requires the exercise of good taste, and at the same time a study for the comfort of those purchasers who look as well for that quality as for elegance and style, in the selection of a carriage. The quality and color of the fabrics in trimmings are mere matters of taste; some prefer a well blended assortment of colors, while others delight in loud contrasts, that make a showy and dashing appearance; but this is a matter that does not interest the mechanic.

The trimmer, after fitting his patterns, will mark off places for his tufts, as shown in the following illustration—this being the style most in vogue at present. In this style the trimming is made up loosely, instead of in diamonds or squares. I cannot say that this mode is an entirely new one, but it is the present prevailing taste, and makes a much easier lining than does the diamond or square form.

In marking the pattern for the back, spaces of about two and a half inches should be allowed for tufts from side to side; four and a half inches from top of back to the first row of tufts; a space of about three inches between the



LININGS FOR A LANDAU.

bottom row and the seat, and two and a half inches between this and the second bottom row. In case the back be very deep, three rows are used. The side squab is marked off in a similar manner.

In cutting the goods for such a trimming, an eighth of an inch fullness should be allowed across, and two and a half inches for swell of back. Nothing should be allowed for fullness between the two lower rows of tufts. There are five tufts through the centre of the back, as shown in example. The side lining is made up in the same way, there being the same fullness across, but none from top to bottom, leaving enough, however, on the top to form an arm—there being no arm-rests used but two rows of seeming lace, with pasting lace between, the lace extending around the back as well as the squab. This manner of trimming gives a very roomy appearance to the interior of the carriage.

The cushions are made up in the same style, allowing one-quarter of an inch fullness between each tuft. If the body be very large, with sufficient space for headroom, the trimmer can give one-half inch fullness. Should the bows be set very low, the cushions should be made as thin as possible, compatible with comfort. It will not be necessary for us to say anything about the falls to the seat, as that part is generally understood by all first-class workmen.

The first thing after cutting out the material is to make up the linings, and should be done in this way: First having picked the hair very fine and laid it loosely on the frame, next put a layer of cotton over that, so that the goods will not touch the hair. There are two advantages gained by the use of cotton, as it gives a softer and smoother surface to the lining, as well as a saving in the wear of material, besides imparting to the inside a more luxurious appearance. The trimmer should be particular in working the hair under the cotton, that he does not work it up through the cotton, and, in order to avoid this, he should adopt the French mode, by not using a stuffing stick, which is a characteristic of the American mechanic. If he will adopt this method of working, he will find that it will add much to the appearance of his work when finished.

G. W. P.

[We have the pleasure of informing our readers that we have made such arrangements with a practical trimmer of this city (of which this article is the first installment), that we hope to give new interest to this department, and render it not only instructive but very interesting to trimmers generally. The communication is quite lengthy and has been divided for lack of space. Ed.]

Leather Cement.—A cement for leather is made by mixing ten parts of sulphide of carbon with one of oil of turpentine, and then adding enough gutta-percha to make a tough thickly flowing liquid. One essential pre-requisite to a thorough union of the parts consists in freedom of the surfaces to be joined from grease. This may be accomplished by laying a cloth upon them and applying a hot iron for a time. The cement is then applied to both pieces, the surfaces brought in contact, and pressure applied until the joint is dry.

Editor's Work-bench.

DISCOURAGEMENTS TO ART.

Arthur Helps, in a recent number of a popular periodical, indulges in a little speculation illustrative of the difficulties the earliest inventor of the wheel underwent from the skeptical around him, and puts into the mouth of an objector the following words:

"We seem to have gone on very well for thousands of years without this rolling thing. Your father carried burdens on his back. The king is content to be borne on men's shoulders. The high priest is not too proud to do the same. Indeed, I question whether it is not irreligious to attempt to shift from men's shoulders their natural burdens. Then, as to succeeding—for my part, I see no chance of that. How can it go up hill? How is one to stop it going down? How often you have failed before in other fanciful things of the same nature! Besides you are losing your time; and the yams about your hut are only half planted. You will be a beggar, and it is my duty, as a friend, to tell you so plainly."

These objections, although not very probable to the minds of those who have studied our pages, yet serve in a great measure to exhibit the great trials and discouragements which almost all ingenious men have experienced on introducing to the world, new discoveries and inventions. How was it with Harvey when he told the people of England how the blood in the human body was forced through the veins by the heart-pump. And did he not as his reward receive the deep-felt scorn of every practical physician in the land? And was he not suffered to pine away in neglect and poverty? Gallileo was made to feel the displeasures of the Inquisition by imprisonment for asserting that the earth moved around the sun, instead of the sun around the earth; and Fulton, too, when he launched his first steamboat upon the wave, was laughed at by the crowd as a crazy man. It is only in modern times that inventors have become respectable, by the force of circumstance, although hardly deserving of such honor, when judged of by the value of their productions. Full one-half of the patents obtained now-a-days are comparatively of little worth, and sink into oblivion soon after they are secured. The larger portion of the remainder die in the inventors' hands, because he never goes to the trouble of advertising and otherwise making his improvements known, being simply content with the short-lived fame he imagines is his for all time.

CABBY.

Once in about every four years the cab fever returns to this city, irritating the nerves of a certain portion of its inhabitants. These are generally Englishmen, who, have been led to think that the Hansom cab is the *ne plus ultra* of everything vehicular in the line of public service, and that their introduction must necessarily "run-off" those admitted pests, the common hackmen, against whom common prejudice has instituted *common* warfare in consequence of their *common* dishonesty and lack of justice in public transactions.

Although these *unhandsome* pets have before been tried in this country, and discarded, with loss to individuals, we now find that a "Hansom Cab Company" has been organized in our midst, having for its object their permanent introduction under the protection of a joint stock company. This movement may be successful in one respect, the cabs may be introduced, but success as a paying investment is quite another thing. The fact is Americans could never relish these trans-atlantic tubs anyway, and just now everything English is unpopular, in consequence of England's treatment of us in the Alabama affair, making it extremely hazardous in a pecuniary sense to introduce them now. We predict, therefore, that the company will loose their money.

There has lately been organized another institution which will most likely succeed, and take the place of those nuisances, the hackmen, who have hitherto disgraced the Central Park with their extortionate charges and filthy traps. This new claimant to public favor is a sort of Cabriolet-wagonette, built by J. M. Quimby & Co., of Newark, N. J., capable of accomodating six or eight passengers, at a charge of twenty-five cents each, for the round trip through the Park. These have been furnished by Messrs. Barber, Stuart & Roberts, and although not all that completeness in design would seem to demand, are, notwithstanding this, very convenient and comfortable vehicles for the purpose intended, and a great improvement over those heretofore in use, being hung very low, open at the sides, affording the passenger an interrupted view of the varied and interesting objects which everywhere meets the eye of the visitor to this already famous locality. Strangers who do not wish to be imposed upon by the old hackmen, will find the new candidates for public favor at the south-east corner of the Park, on the Eighth avenue entrance. The drivers have adopted a sort of uniform, not much unlike that worn by our policemen, and are under strict discipline.

THE VELOCIPEDE WAR.

OUR last report informed the reader that Stephen W. Smith, the cantering horse man, had sued Calvin Witty, a carriage dealer in this city, for certain infringements upon a patent granted to one P. W. McKenzie, inventor, of Jersey City, which patent he claimed somehow covered that of Lallement, of which by purchase Witty had come in possession. Since that article was written, Witty & Smith, under the influence of self-interest, seem to have come to a mutual understanding, buried the hatchet, and united their resources in a common stock to make warfare in law against all who they conceive have trespassed upon their imaginary rights. We say *imaginary*, for we cannot consider their claims in any other light, since this unlooked for union on the part of the litigants, who probably imagine that their united claims will make out a stronger case and insure success in their warfare with offenders. That which still further weakens our faith in their expectation of final triumph is the fact that instead of asking from the manufacturers a royalty of ten dollars on each machine constructed as formerly, they now modestly offer to take up with half that amount and settle back dues on the same basis. Whether this alliance will render them "masters of the situation," or not, time will prove, *if a case is ever tried.*

Just at this point, however, these claimants have met with unforseen opposition from a quarter least expected. Those who are supposed to be the victims—the manufacturers of velocipedes—have now formed a combination among themselves for mutual protection—the result of several conferences—engaged legal counsel and contributed to a common fund from which to fight it out on that line to the bitter end. This counsel we learn express the same opinion we have all along given the public—that neither of the claimants, Witty nor Smith, will ever be able to maintain or establish any legal claim to a valid patent, so as to demand damages under the sanction of law. The probability is that the proceedings, now taken on both sides, will kill the whole thing by the time the machines go out of use. Those, therefore, who have taken our advice, and held on to their money, will feel relieved, and should they desire will now have the opportunity for making common cause against their enemies, by association, at a small expense, with their friends in New York, who are willing and ready to receive offers from country manufacturers. Remember that "in union there is strength" and act accordingly.

Since the above was penned, we have received the following in the form of a circular:

OFFICE OF C. VAN HORN & CO.,
No. 31 Chambers Street, New York, June 11th, 1869.

E. M. STRATTON, Esq., 208 Lexington Avenue.

Dear Sir: The undersigned, a Committee appointed at the National Meeting of Velocipede Manufacturers, held in this City, June 7th, respectfully call your attention to the transactions of that meeting, as herein stated, and solicit your contribution for the purpose specified. (Perhaps a brief account of the origin of the meeting may give information to those whose names were not accessible to the Secretary, and consequently not notified.)

In view of the annoyance and embarrassment felt by Velocipede Manufacturers, relative to numerous patents under which they have been notified to pay a royalty, and under the conviction that the makers against whom the several owners of patents claim payment for the use of certain inventions, have a common interest, and should adopt some concerted action, the New York manufacturers determined, a short time ago, to effect a Union Association, and invite the co-operation of manufacturers all over the country. A preliminary meeting was held in this City on the 24th of May, at which the matter was discussed, and it was moved to adjourn over to the 7th of June, with the view of obtaining further advice on the several patents, and notifying manufacturers throughout the country, inviting them to be present.

The meeting of June 7th has represented fully the manufacturers of New York and other States, and after a full deliberation of all the points to be considered, it was unanimously

Resolved—That of the three patents—the Hanlon, the Lallement or Witty, and the McKenzie or Smith Patents—the Hanlon is the only one the claims of which appear to affect us, and under which there is any justice in the demands made upon the manufacturers, and that it is the only one we acknowledge and pay a royalty to.

Resolved—That it is expedient to raise a fund to which we will contribute; said fund to be held by the Treasurer of the Association and devoted to the purposes of defraying the expenses of any and all litigation which may be instituted against members of this Association, under the Witty or Smith patents, or both of them, with the object of enforcing any royalty to either of said patents.

Resolved—That all manufacturers be invited to enter this Association and pay in to the Treasurer the sum of fifty cents on each and every machine made after March 1st, 1869, when the number made is in excess of twenty, where the number made is less than twenty the sum of ten dollars; that the fund so formed, shall be paid out upon an order of the Committee hereinafter named for the purpose of litigation as before resolved and a true account kept by the Treasurer of all disbursements; that in the event of there being a surplus on hand after the matter of ligitation shall have been consummated, it shall be returned to the contributors of said fund *pro rata.*

Resolved—That the Committee hereafter named be instructed to engage eminent Counsel to conduct the defense of such suits as have been or may be instituted by Messrs. Witty or Smith under their patents, and a effort made to expeditiously bring such suits to trial and a final decision.

Resolved—That Cornelius Van Horn, Esq., be the Treasurer of this Association.

Resolved—That T. R. Pickering, G. H. Mercer and C. Van Horn be a Committee to invite membership, engage counsel and conduct the litigation.

You will perceive that by a vigorous and able defence in the matter of the suits first commenced, *you* will probably be relieved from the trouble and demands of the

owners or representatives of these patents, and avoid the expense of ligitation, as the whole question of the right to claim royalty under either of these two patents will be settled by the result of the first suits, while on the other hand, should the parties upon whom proceedings are first commenced *settle*, you would be called upon for the same unjust demand, and should you rely wholly on your own resources and evidence, you would probably at some time have legal proceedings commenced against you and be forced, in order to avoid the whole expense of a suit, to pay a royalty to one or both of these patents.

Trusting that you will see the importance of raising this fund, and that you will cheerfully unite, by communicating with our Treasurer, C. Van Horn, Esq., 31 Chambers Street, New York. We are

Very Respectfully Yours,

T. R. Pickering, of firm of Pickering & Davis,
C. H. Mercer, " G. H. Mercer & Monod,
C. Van Horn, of the Tomlinson, Demarest Co.,
} *Committee.*

DEATH OF PETER DUBOIS.

This gentleman, who, after a long illness, died of the heart disease on the first day of June, at the age of fifty-four, was for many years engaged in the carriage business, at 202 Green street, New York city. Mr. Dubois was born in Greensburg, Westchester County, New York, and learned the blacksmith's trade in this city with Cornelius Barcalow. Among sporting men Mr. Dubois was a great favorite, his buggies finding a ready sale for racing and other amusements. A great feature in his manufactures was nicety in detail after a pattern of his own, which imparted to them the greatest strength compatible with extreme lightness. Our deceased fellow craftsman was the lessee of the Harlem Lane Race Track, and took a great interest in everything connected with the turf. He leaves behind, to mourn his loss, a widow and one child. His remains were interred in the grounds of the Dutch Reformed Church, in Tarrytown, on the banks of the Hudson.

REVIEW OF TRADE.

Carriage-making during the months of May and June has been unusually dull for this season of the year, generally considered our harvest time. The great reduction in freights, westward, so beneficial to the dry-goods, and some other branches of trade, appears to have had very little effect in stimulating to activity the carriage business. The high prices now ruling for almost every article of consumption, or manufacture, renders it extremely hazardous to undertake anything in the line of speculation, and the stringency in the money market hinders the placing of orders and almost entirely stops the sale of luxuries, such as carriages manifestly are. Nor has the making of velocipedes, in every city of note in the Union, done much for the trade generally. Early in the season some few carriage-builders found a little relief from this source, but so many other branches of trade went into the business—"on the cheap plan"—that they have already glutted the market and nearly killed the business with their clap-trap machines, so that now there are more sellers than buyers. As the velocipede fever is manifestly on the decline, the probability is that very little relief will be found for trade in that direction, for very soon the thing will dwindle down to the level of a mere toy, fit only for the amusement of boys.

With the exception of two or three establishments in this city, trade is worse than it has been known for several years, and is confined chiefty to repairing. Nothing is more evident of this than the fact that some of the metropolitan establishments have now resorted to advertising as a means of increasing business under the pretext of selling at a greatly reduced price. That some of these advertise at all is quite significant of a derangement somewhere, and an indication of hard times. From the country too we hear loud complaints of the lack of business and need of money altogether discouraging. Unless trade revives very soon, we fear the season will pass by unprofitably, and a hard winter be entailed upon those engaged in carriage-building, such as they have not felt for years. The only remedy we can offer in the case is to advise our friends to be careful and not go too deep into manufacture, thereby increasing their obligations beyond control, at the very time when pecuniary aid is the most difficult to be obtained, and perhaps thereby ruin their credit forever.

TRADE NEWS OF THE MONTH PAST.

Over in Newark, New Jersey, the other day some sixty masons belonging to a Union struck because their employer, who had at the time only two apprentices, choose to take on another which would then only give him one to every twenty journeymen. This act was more than labor would submit to from capital. Where are we drifting?....The Bricklayers Union in Washington have ordered the eight-hour men in the Navy Yard to strike, unless the two negroes employed there are discharged forthwith. This "bucking" against the darkey, shows the *kind* of liberty labor dispenses to its victims!....The waiters in the principal hotels struck for $35 per month—they had been getting thirty—and the employers combined too, printed the names of the strikers and refused to employ them again on any terms—so that strike failed of its object. [Note.—This strike, so *pomposly* undertaken, has ended in throwing the men out of employment (the bosses agreeing never to hire them again), and expending $3,800 of their accumulated funds. At the last meeting held by the waiters $700 of this money "disappeared around the table," on which they transacted business, to the utter disgust of the honest portion. Alas! for poor human nature.]....The house framers too demanded fifty cents more per day than they had been getting, but in-

stead of turning out in a body, only about four hundred and fifty men left off work. These, employers refuse to have in their shops again, and consequently that number of Germans find nothing to do, except to reflect upon and mourn over their folly....The clothing manufacturers made an advance list of prices, which if they had secured would have given them twenty-five per cent higher wages, but resulted in half of their number accepting work at the old rates, and the other half going about looking up work (if they can only get it) on any terms.

VELOCIPEDIANA.

Michanx, a French maker of velocipedes, employs about five hundred workmen. The price of his machines is 300 francs. The French machines are much inferior to those manufactured in this city....Michanse & Co., of Paris employ one hundred and fifty men on velocipedes constantly, turning out five per day. Their machines sell for 350 francs, plain, or 500 francs "in polished iron, with the patented improvements."....A late number of *Harper's Weekly* treats its readers to a drawing of a velocipede reversed, on the larger wheel of which a scissors grinder is plying his occupation. This, it is facetiously said, will be the fate of all by-cycles in a few years....Velocipedes are so numerous on the side-walks of New Bedford, that they are a public nuisance to its citizens. The authorities are appealed to abate it..... The *Chicago Times* is responsible for the invention of the word "velocambipedextrianism," which is defined to mean swiftly moving by a power skillfully applied with both feet....A journey from Liverpool to London, has lately been performed by two "sports," which was completed in three days. The tourists carried their luggage in carpet bags, strapped to their vehicles.....A man in Danbury, Conn., stakes five hundred dollars, that he can construct a velocipede which *can* outstrip a horse....The one mile race for $150 velocipede, recently undertaken in Brooklyn, N. Y., was won by Mr. Pickering, on a forty-inch machine, in 5:57....A match was lately made between two *donkeys* in Hoboken, N. J., the one to run on a machine, the other on four legs; but, it was broken up by the "perlice," when about to be undertaken, to the great disappointment of some Jersey *asses*, present to see the fun.

EDITORIAL CHIPS AND SHAVINGS.

The Triumph of Maximillian.—In one of the earlier volumes of this Magazine, reference was made to a book with the title heading this article. This work is said to have been executed in the years 1516, 1517, and 1518, where we are told the "curious readers will find plates of various carriages or cars, some drawn by horses, some by camels, some by stags, and others impelled forward by means of different combinations of toothed wheels, worked by men." If any of our readers has a copy, we should be happy to purchase it.

American Wheels in England.—We see it stated in some of the newspapers that England is *beginning* to send over orders for our wheels. We can assure these editors that this is no new thing. Ever since the Great Exhibition in London, when they were first introduced, there have been large quantities of both turned hickory spokes and hickory wheels exported to order from the leading coach-builders, and met with great favor. We, ourselves, have filled a great many orders of this kind.

The Power Consumed by Drills.—Captain Clarinoal, of the Engineers' School, at Metz, has made some elaborate experiments on the resistance of drills, from which he concludes:—(1) That nearly the same power is required to drill hard wrought iron and hard cast steel; (2) the power required to bore soft steel is not much greater than that required for hard wrought iron, but the former increases rapidly with the depth of the hole. Thus, at a depth of five or six millimetres, the power consumed in drilling with soap-suds in soft steel, a hole fifteen millimetres in diameter, is equal to that consumed in boring one of twenty-five millimetres in diameter in hard wrought iron.—*Engineering Eclectic Magazine.*

Wheel Making Extraordinary.—At a meeting of the Polytechnic Branch of the American Institute, lately held in this city, Mr. J. W. Weston, among other things, exhibited a wheel and hub which he claims to have invented. Although he did not claim originality for the principle, he did for its application, and on this he has secured a patent. The hub and wheel are made up of a series of cross grained veneers, which being placed in a cylinder of the required thickness, are glued, pressed and rivited together, by which means he claims that greater strength, lightness and durability are given to the wheel. This wheel is said to be capable of sustaining a great weight, and running on ordinary roads, without tiring. The veneers may be about one-eighth of an inch thick, and the more there may be of them glued together, the stronger will be the completed article.

The Wonderful Steam Man.—We learn from the *Courier-Journal*, that an old acquaintance, the steam-man, so graphically discribed by us some time ago, is now there in Louisville, where the natives are told that "he has made his mile in 2:15; and will be shown in motion." In the advertisement he is seen drawing a barouche with four passengers. So far from being able to do this, we venture to say he cannot *draw* himself. Wonderful humbug! "Big thing," but horses are still dear.

How to make "Hardware" Advertising Profitable.—Act as the agent of some firm, solicit advertisements, take the money therefor, and put it into your own wallet. When reminded that the thirty dollars paid you has not been accounted for, say it was merely an omission, or oversight on your part. This soon may be doubled if you can find some labor Union, that will entrust money to your hands, for certain purposes.

Schnitzerl's "Philosopede out-done.—The one-wheel machine, (on paper,) which we gave our readers an account of some time ago has been beaten "out of sight," by one got up in New Orleans. The *Picayune* thus describes what it calls *a wheelocipede:*

castor for wood axle trees, and castor oil for iron. Just grease enough should be applied to the spindle of a wagon to give it a light coating; this is better than more, for the surplus put on will work out at the ends, and be forced by the shoulder bands and nut-washer into the hub around the outside of the boxes. To oil an iron axle-tree first wipe the spindle clean with a cloth wet with spirits of turpentine, and then apply a few drops of castor oil near the shoulder and end. One tea-spoonful is sufficient for the whole.

We would add that for journals on which there is a heavy pressure it is a good plan to mix with the oil some lamp black or common soot. Powdered plumbago or black lead is also employed for the same purpose.

HARDWARE.

Mr. Editor:—It is a little amusing to notice the reticence of your cotemporary, who fails to answer the proof of his deliberate and wilful falsehoods, contained in the article issued in your April number, over the *nom de plume* of "A Member of the Coach-makers' Union." Is he callously indifferent to exposure, or did the article referred to excite but a *very small* portion of honorable (?) shame in him; or is he proof against all those higher feelings which men usually carry into official positions; or are we to draw the inference, that the proof is so conclusive, "that silence gives consent" to the allegations? Heretofore he has catched up and commented upon the slightest allusions made in your magazine, in regard to his official actions and honesty, torturing and twisting them by his *adopted* editorial *melange* into a temporary shield for his dis-

the I. U. I have heretofore held myself aloof, from reasons of delicacy, knowing the person alluded to is extremely sensitive in regard to anything which touches his honesty, and well he may be; but we do not wish to cast a stone at the unhappy and *suspended* secretary, we will leave him to grow pious and moralize amain, but while he is doing so, we shall speak of some matters in which he was connected, freely, and as we think justly, and for the purpose that an understanding and publication of the facts in our possession, which compromise the honesty of that individual, should be laid before your readers. It is also absolutely indispensable to the vindication of charges made by the President of our organization against him, and as the issue proves true in each and every particular. At one time, this was a paradox, but time has given it proof.

But as he has ignored the truth by means of the press heretofore, and by his self-assertious, through circulars and the columns of *his* (?) publication, it is my purpose, *not* by reason of any false motives of delicacy, to withhold any information which should have been in the hands of those whose interests he subsidized to his own pecuniary benefit, thereby depriving them of moneys appropriated for the use of the I. U. in nurturing *his pet scheme* of a publication of which he was successful in gaining possession through a systematically deep laid scheme; and how, forsooth, he accuses us of "trying to injure his chances for an honest (?) living." A murrain upon such honesty; a fig for such twaddle. Is this the honesty we have heard him prate so much of? Honesty may well hide her head in shame. In connection with this article, I think it *apropos* to mention one or two more neat little

honest (?) transactions of this worthy. He received sixty dollars from the Labor Congress, assembled two years since in Baltimore, for the purpose of paying for the printing of an address to the workingmen of the United States, failing from time to time to issue it. At last it was issued by the officers of the N. L. C., and our then secretary has been called upon many times since to refund the money paid him for that purpose. He, however, has failed to do so, and, as I am informed by a late letter, has to this date; but, on the contrary, he puts in a counter-claim of sixty dollars for services in drawing up the minutes of the N. L. C., in doing which he employs an assistant in our office, *at our expense*, we paying him for the work for which *he* asks sixty dollars; but he is very careful not to give us credit for *loss* of time of the sssistsnt in drawing up those minutes, and is still *more* careful, in giving himself credit regularly with his own salary, taking pay, therefore, in many cases "in advance;" the result being, when he reports at our Convention in Cincinnati, Ohio, he has paid himself every dollar (the books say overpaid), and has wronged the president out of some six hundred dollars. Is this honesty? These charges may be refuted by the *domineering self assertions* (his usual argument) of your cotemporary, but we have printed as well as written proof that these are veritable facts.

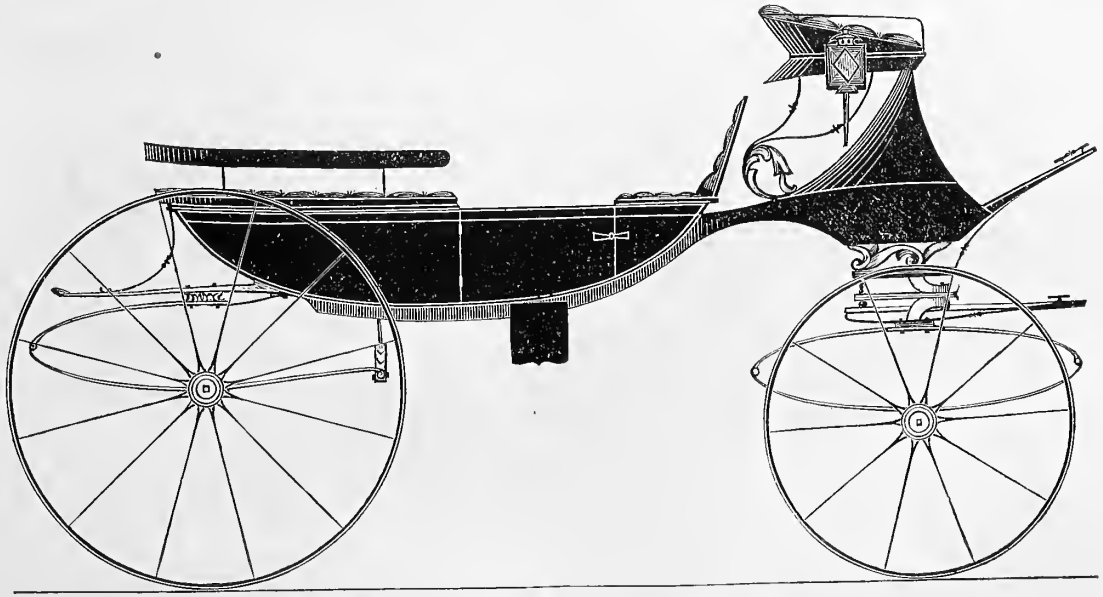
I am informed by a letter which lies before me, that he has not refunded this money as yet, but has promised to do so soon. Now, it strikes me very forcibly, that by this concession, he admits that the charge of sixty dollars against the N. L. C. was a fraudulent one, or if not, that he has received pay for the same from our I. U., thereby defrauding them out of our money. There are two horns to the dilemma; he can accept either, or both, if he thinks he can ride on them. I can enumerate several transactions of that worthy on a par with these, but think it unnecessary at this time, as I have given enough to show you the corrupt fountain from which all these base, bitter waters flowed, which engulfs all honest thinking union members.

JOHN B. PEEK,
1st. V.-Pres. of C. M. I. U. of N. A.

ISAAC'S ENTERPRISE.

MR. EDITOR:—I have not been an inattentive reader of the exposures of the editor of your Cotemporary, and the undeniable evidence as adduced by your correspondent, "A Member of the Coach-maker's Union," in proof of the base falsehoods contained in his periodical, for we have most of this evidence in the hands of our Secretary. By your indulgence I should like to propound one question to this man, who claims to be the personification of honesty and probity, and who was the Secretary of our I. U. until *suspended*. To what purpose did you appropriate a surplus of over one hundred dollars (this amount being over our assessment for the New York strike), your literary scheme, or in refurnishing your house? We applied by letter to him several times for a statement of our account, but have never been able to elicit a satisfactory answer, or the much coveted statement, consequently, we concluded to keep our money in the hands of *our* Treasurer, and not permit it to pass through his hands.

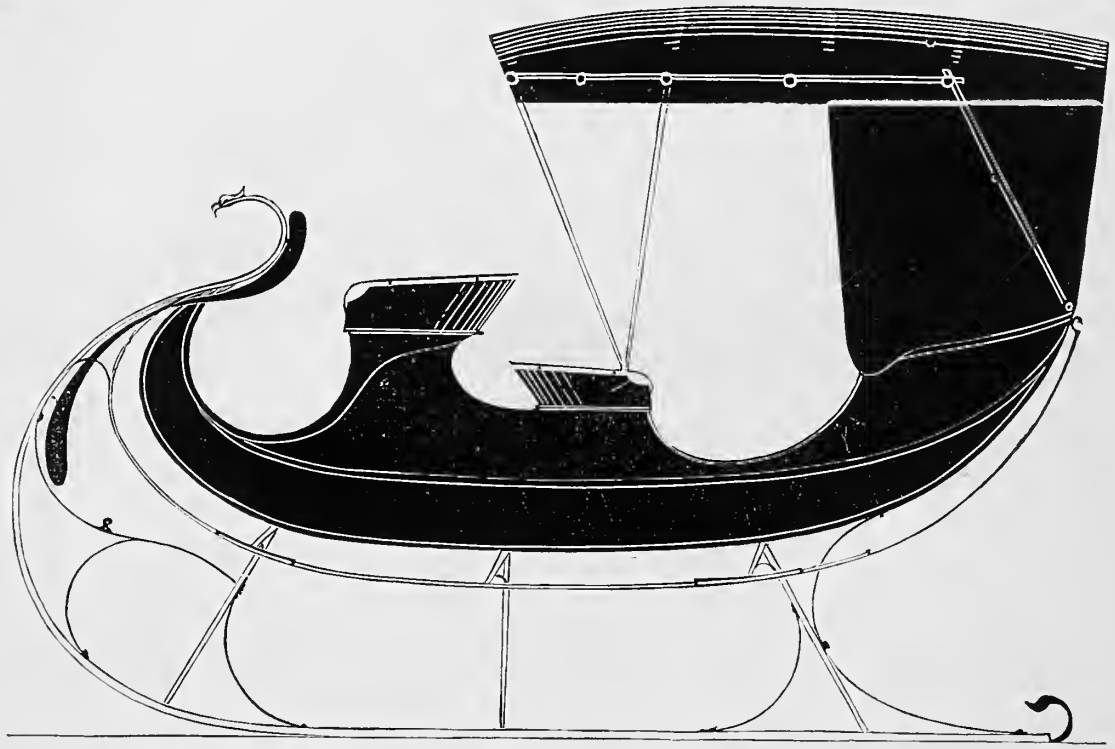
No. 21, PORTLAND, ME.



PHAETON CARRYALL.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

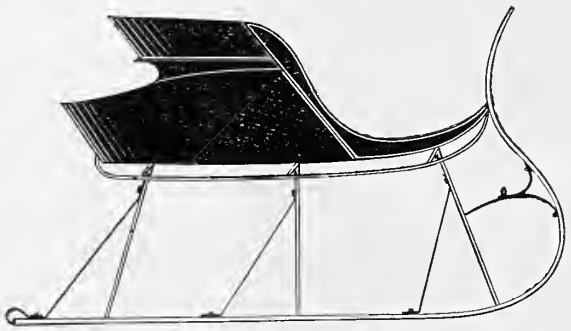
Explained on page 41.



SIX-SEAT EXTENSION-TOP SLEIGH.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on Page 41.



BUGGY SLEIGH.—½ IN. SCALE.

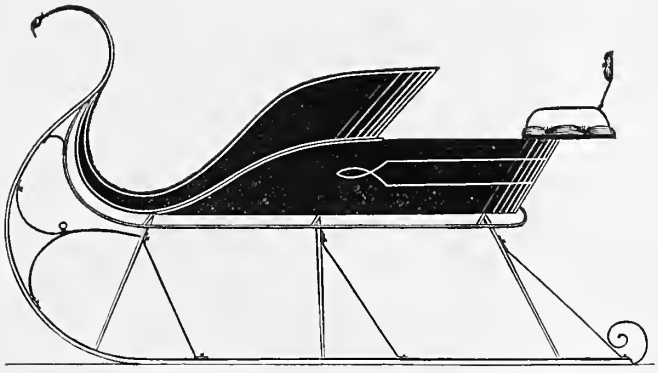
Designed expressly for the New York Coach-maker's Magazine.

Explained on page 41.

PHYSICIAN'S PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

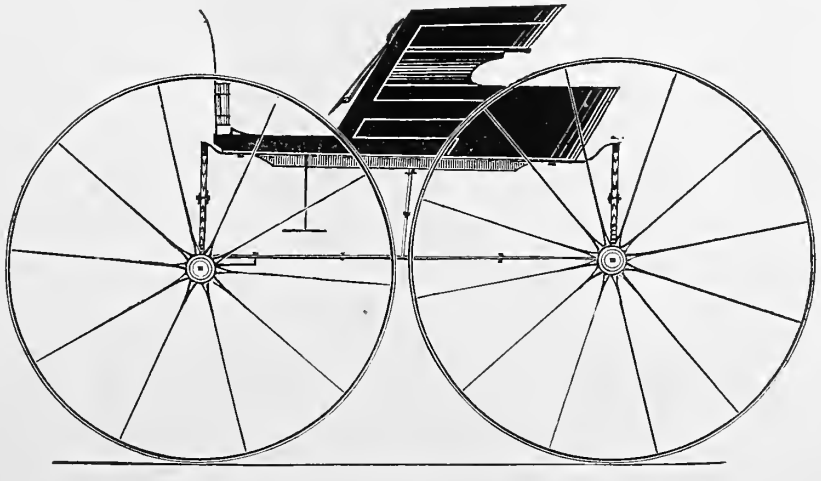
Explained on page 41.



PHAETON SLEIGH.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine

Explained on page 41.



ROAD BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 41.

THE NEW YORK
CHESS-PLAYER'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XI. NEW YORK, AUGUST, 1869. No. 3.

Mechanical Literature.

ADVENTURES OF THREE JOURS.

BY H. S. WILLIAMS.

Chapter III.

"As you are a stranger here," said the General, while seated at the breakfast table, "let us devote this day to seeing the city; for, I do assure you, it is well worthy a day's time. We have the best Havana cigars, the best oysters—barring, perhaps, Mobile—the best coffee, and the prettiest girls in the whole country. I do not leave before to-morrow, so I am in no hurry. What do you say?"

"I acceed to your proposition with the greatest pleasure, General, for I have long wanted to see New Orleans, and without a suitable guide it would be useless to make the attempt; therefore, consider me at your service until you leave."

After donning a thin suit on the part of Gloner, and a civilian one on the part of the General, out of respect to Gloner, as he facetiously remarked, who hated to be stared at, the two started forth; and, to Gloner, it was one of the most interesting days he ever spent in his life. Through the French part of the town they rambled, stopping now and then to admire some public building, or tastefully arranged store, until they reached the public square, where they rested themselves beneath the welcome shade of broad-leaved bananas, and inhaled the rich perfumes of countless roses, while they criticised the famous equestrian statue of the hero of the city. During all the forenoon, Gloner saw so much, and everything was in such exquisite taste, from the gorgeous salesroom down to the plain muslin dress of the little French sewing-girl, whom he saw hurrying along the street with her bundle; and then he heard so much chatter, chatter, chatter, in that race-horse vernacular, on street corners, in store-rooms, in the gardens and saloons, that he was really glad to get back to the quiet of his own room, where he enjoyed a brief but delightful siesta before dinner was announced. The General proved himself a most excellent caterer to the comfort as well as to the amusement of his protege; for no sooner had they regained their room after dinner than a servant announced a cab; and, lighting their cigars, they were soon on their way to the battlefield. It was a most delightful ride over a smooth, broad road, through a portion of country most highly improved. Great orange orchards could be seen, the golden fruit hanging in the greatest profusion, and contrasting most beautifully with the dark green foliage of the trees. It was a very pleasant afternoon to Gloner, and he returned to the city with feelings of regret. Then, in the evening, the General called on an old friend of his—an old gentleman with several sons and grown-up daughters—when they visited the theatre, where Gloner saw the most brilliant audience of gaily dressed ladies and gentlemen he had ever witnessed; and when he re-entered his room at the St. Louis, the whole day, with its ever-varying series of events, appeared more like a dream than reality. All was so new and so strange, so different from aught he had ever witnessed before in the great cities of the North.

"I leave you at daylight," said the General, "as I take the Berwick Bay route to Texas."

"Well, call me if I'm not awake," answered Gloner, "and I'll see you off, at all events. It will be a lonely day here without you; for I cannot leave, if I go at all, before four in the afternoon."

Pshaw!" returned the Governor; "don't talk about being lonesome in this city. Why, you have not seen half yet. If you go down to the levee with me, you can go to the French market, just at daybreak. Then is the time to see it in all its glory. But we have only two or three hours for sleep, so let us improve them; and they did.

The next morning a cab set them down at the foot of Canal Street, just in time for the General to get on board the little ferry-boat that was to convey him across the river. "Good-by, Governor," exclaimed Gloner, as he took the hand extended to him.

"Good-by, my friend; I shall ever remember you with the warmest regards, as I will prove should we ever meet again. There is my address; and if you ever come to that part of Texas, you will always find the latch-string out."

And so they separated.

Gloner strolled leisurely down the levee until he reached the French market; then, taking a seat in one of the stalls, he called for his cup of coffee and a light roll, and took notes of what was passing about him. Never

before had he realized what Babel must have been. Such a noise and such a confusion he had never witnessed before. Purchaser and seller were both talking at the same time, in the most rapid and vehement manner. Dogs were barking, parrots screaming, draymen yelling, milkmen brawling, and negroes singing, all combined making such a deafening noise, that Gloner drank his coffee and swallowed his roll, only too glad to get away as soon as possible. Luckily, the public square was near at hand; so he hurried thither, and passed an hour among the flowers, inhaling their fragrance, and listening to the mocking birds, before he returned to his hotel.

After breakfast, he visited the various carriage repositories of the city, of which there were some half a dozen, but no regular manufactory. Nearly all the repositories, however, had a repairing shop attached; but the most they done was such jobbing as come in, and in revarnishing their northern-made carriages. It was but a small task to go to all these places, and, long before noon, he returned to his room without having found anything to do; therefore, the next point in his destination was Mobile. A good nap, an excellent dinner, a stroll along the river, brought him down to three o'clock, when he got ready and called for his bill. "There must be some mistake," said he to the servant, as he saw the amount was only two dollars; "I came here yesterday morning to breakfast, so I will go down and see." On proceeding to the office, he was informed by the clerk that the General had settled his bill up to that morning, and two dollars was all he had to pay; so, settling it, he proceeded to the Lake Ponchartrain railroad depot. In half an hour's time, he was at the Lake, and had everything safely deposited in the elegant steamer California. The weather was truly delightful—warm days, but cool, frosty nights, not unlike October in the North; and as everything betokened a pleasant trip, the steamer took what is known as the outside passage, or, to speak more plainly, to the southward of the numerous islands that skirt the southern shore of Mississippi. It was a pleasant voyage, but so short that Gloner had no opportunity to form acquaintances with his fellow passengers with whom the boat was crowded, almost to excess. The latter fact threatened to interfere somewhat with the table arrangement; but Gloner, like a true philosopher, ever having an eye to No. 1, generously paid one of the head waiters, for which trifling act of charity, on his part, he was promised "de very bes seat at de fus table shu;" and he got it, and congratulated himself on his shrewdness withal; for, as the waiter confidently informed him, "they had'ent 'spected such a lot of folks, and de kitchen fixens were about to run out."

The company at the table was a mixed affair, and one so new to our friend that he scanned their faces alternately. The vivacious Frenchman, the dark-skinned but proud creole, the aristocratic planter, the young fop, and "the gentleman of elegant leisure," without "visible means of support," were all there, and all peculiarly Southern, while the ladies, who formed nearly half of the company, were nearly all handsome. The meal was, perhaps, half through with when two vacant chairs on the opposite side of the table were occupied, and Gloner found himself *vis a vis* to one of the most charming creatures he had ever beheld. Her figure was *petite*, but most perfectly moulded and superbly rounded. Her face was a pure type of a true Southern beauty; a clear olive complexion, large lustrous eyes, and a wealth of golden hair, in the massive coils of which a single rose-bud lay half concealed. Her companion was an elderly gentleman, whose ruddy complexion and portly form indicated a life of ease and good living; in fact, we never see such an one without associating him with the indolent life of the *ante bellum* planter and well-stocked wine cellars.

But it was to his companion that Gloner paid most of his attention, and to say that he was charmed would only express his true feelings; and he paid her that silent but most eloquent homage which a lover of the beautiful ever bestows on beauty, whether it be delineated by a master hand on canvas, or by Nature on the human face. An earnest but respectful, admiring look is the highest compliment man can bestow on woman. When Gloner left the table, it was with a feeling of regret that the minutes devoted to supper were so few and the distance to Mobile so short; but, lighting a cigar, he promenaded the afterdeck for an hour or so, trying to forget the fairy vision that had flashed across his pathway, by thinking of other things; and soon after he sought his berth, and was ere long asleep.

At daybreak, the next morning, they rounded the eastern point of Dauphin Island, and passed up the channel leading into Mobile Bay—not unlike the narrows at New York—with the broad foundation of Fort Gaines to the left, and the frowning walls of Fort Morgan to the right. Then they passed through the lower bay, with a thousand vessels laying at anchor, awaiting their cargo of cotton, and on up thirty miles northward, when they reached their pier in safety, and our hero was soon walking the streets of Mobile, the great cotton mart of Alabama and Mississippi.

Proceeding up the street at the foot of which he had landed, he soon came to the public square, one of the most beautiful resorts, he thought, that he had ever seen, and filled with live oaks that threw a most inviting shade on the green sward beneath, and, noticing a livery stable beyond, he proceeded thither, and inquired of the proprietor if there were any carriage shops in town.

"There's three or four repairing shops here, if that's what you want, and not much at that," was the reply. "Are you a carriage-maker?"

"Yes, sir; that is my trade."

"Trimmer?"

"No; a wood-worker."

"Ah, ha! Let me see. I could give a trimmer a job for a couple of months or so. Put a painter at work this morning, and don't know but what I should like to have two or three buggy-bodies made if I can get the lumber in town. Come and look at them," and the proprietor led the way to a large lumber room in rear of his repository, which was filled with old broken-down carriages of every description, from a trotting sulky to the finest coach. "Am a little short of buggies just now, and would not mind getting two or three of these old ones fixed up if it would not cost too much. Pick out say three of the best ones in here, and let me know what you will fix up the wood-work for, so as to put them in good order. When you get through, you'll find me in the office," and Gloner was left alone.

"Why don't he take his old buggies to the shop and get them repaired," he thought, as he began to inspect them. He soon picked out three of the best, and noted

what repairs, in the wood line, were needed, when he returned to the office.

"Well," said the proprietor, "what will you fix 'em up for?"

"First let me see what accommodations you have here for work," he answered.

"Got a good room up stairs next to the paint-shop. Jake, go and show this gentleman the wood-shop."

"Is the painter at work?"

"Yes; he is up in the paint-shop now."

"Where is he from?"

"Haint the least idea. Up in Yankeeland somewhere, however. Run across him last week up at Brandon, in Mississippi, and brought him down."

"What is his name?"

"Loring, I believe."

"Ah! I know him, then; and a first-rate painter he is. We'll go and see your shop, and then I think we can strike a bargain," and he followed the darkey through the long stable and up a broad pair of stairs that led to the paint-room. On entering it, there was Frank, sure enough, applying color to an old carriage part.

"Why, hallo! Gloner," he exclaimed; "glad to see you, old boy. Expected to see you before long. I only got here last night, and just found out an hour ago when the New Orleans boats get in, else I'd been down there this morning. Have you seen old Hardy, the proprietor of this establishment?"

"Yes."

"Did he offer you a job?"

"Yes; or, at least, in part. He wanted me to look at some old buggies and say what I'd repair the wood-work for."

"And you told him?"

"Not yet; I wanted to see what accommodations he has here first."

"Good for that! Don't tell him till after dinner. There's a chance for a speculation here for you, at least; but he has got me on the dead."

"Why so?"

"Why, he met me at Brandon the other day, and, of course, I was somewhat downhearted as I hadn't got a job yet, and he offered me four dollars a day for two months and pay my way to Mobile; so I took him up, and five dollars a day is the lowest wages paid here by the day; and if I had only known enough and worked by the job, whew! why I could have got twenty dollars for painting an old buggy. So I want to post you a little as to the prices here. It is now dinner-time, so we'll go down to dinner and talk over this matter."

"Tell me one thing," said Gloner, when they got on the street, "why does not old Hardy, as you call him, take his work to a shop and have it repaired?"

"That's just what bothered me," answered Loring; "but I found out this morning. It's because they charge so high; and then there are half a dozen stables here that can and do give employment to a painter and trimmer half the time. Why, at a shop below here on Centre street, they charge thirty dollars for repairing a buggy, fifty dollars for a new set of wheels, fifty for a duck top, and everything else in proportion; so you see if a buggy is pretty badly broken down, it's cheaper to buy a new one; and there's two or three repositories here all filled with Northern work."

"Let's have a good Havana cigar to settle our dinner," said Loring, after they had left his boarding-house; "they are the best I ever burned, but, of course, you tried them in New Orleans. We don't find such cigars up at St. Louis."

"So you found nothing to do at Vicksburg?" asked Gloner, as they left the cigar store.

"Not a thing. All the river towns are filled up. Could have got a job at Jackson if I had waited a week or two, until the boss sent after stock, and was told they wanted a painter at Canton, some twenty miles north of there; but it was out of my route, so I didn't go up. It cost me twenty dollars to get from Jackson to Brandon, which I thought rather expensive traveling; so when old Hardy made me an offer of four dollars per day and expenses paid up, I jumped at it. Will stick it out for a couple of months, though, and then the hot weather will begin, when I mean to get up country, and out of the way of the Yellow Jack, as they call the yellow fever here. But there's a list of prices that one of the hands at the repairing shops below here gave me this morning. Look over it and make out your bills accordingly.

A little later, Gloner was closeted with Mr. Hardy, and the result was that, after half an hour's talking, a bargain was made, by which Gloner was to repair the three buggies already alluded to, for a specified sum, provided the lumber suitable for the work could be had in the city. The lumber was easily found, however, by Gloner, who volunteered to go out and look for it, and before night was safely housed in the shop, ready for work the following morning. As Loring's boarding-house seemed every way a desirable one, he had his books moved thither, and his tools in the shop before night.

Well, did you make a good bargain with old Hardy?" asked Loring, after he had finished his day's work and was joined by Gloner.

"Yes; I think so. If I have good luck I can make about seven or eight dollars a day at it; but, as I want to get another and a larger job out of him when these are finished, I will take it rather slowly, and make about five. Then, when I get through with him, I think there will be a chance for a speculation in buying some of his broken-down buggies and repairing them for sale."

"That's what I've thought, and we'll see what can be done in that line in the meantime. Now, if we only had Margrave here; of course you have not heard from him?"

"Not a word. I will write to Montgomery to-night, and if any letters come there for either of us, we'll have them forwarded to this point, and by that means we may be able to get him here, for Hardy must have a trimmer before he can finish his work."

"I do not know as you are aware of the fact, but I worked for two years in the trimming-shop before I went to painting," returned Loring, "but, of course, I would not attempt it in a regular shop; but here, and on repair work, too, I think I could do a good job after I got my hand in. At all events, I intend to try it as soon as my two months are up, and if a trimmer does not come along, for I want to get even with the old fellow for that other dollar a day. After supper we'll call on Rhodes, a blacksmith that works down at Wright's shop, and then take a stroll over town. It's a beautiful place, they tell me, although I have not seen much of it yet."

After supper they carried out Loring's programme, and passed a very pleasant evening. Government street, with its broad sidewalks and huge live-oaks, pleased

Gloner more than any other street in the city, while Royal and Dauphin streets were Loring's favorites on account of their business, and as the fashionable thoroughfares of the city. It was late that night before they returned, for the evening was warm and pleasant, when, after a cup of most delicious coffee, they retired to their rooms, and, for the hundredth time, blessed the lucky thought that took them away from St. Louis, with its ice and snow and cold nor'westers.

PORTE PENCIL ON MODES OF TRAVEL.

There are usually sixteen modes of traveling, namely, by steamboat, sailing-vessels, batteaux, canal-boats, rafts, canoes, and skiffs, upon the water, and by railroads, stages, wagons, coaches and sleighs, on horseback, on foot, on stilts, by velocipedes, upon land, and by balloons through the atmosphere. Each mode has its peculiar advantages, and each again its various sub-divisions with their separate merits, any one of which may be adopted to accomodate the character, mood, or habit of the traveler.

The sub-divisions are more numerous than the divisions would seem to indicate. Steamboats, for example, are of several kinds, viz., large and small, with one or two engines, sometimes four, tow-boats and passenger-boats. Sailing vessels may be divided into ships, brigs, schooners, sloops, cutters, scows, fishing smacks, and skiffs. Batteaux are constructed in various ways, and there are three kinds of canal boats, viz., packet boats to carry passengers, line boats for merchandise, and scows for stone, lumber, earth, &c. Rafts may be made of logs, boards and plank, or of slabs and brush. Canoes are cut out of a log, or made of green hides or birch bark.

The term *stages* is associated with a long catalogue of calamities, inconveniences and horrors, almost insupportable. A stage is a heavy, unwieldy vehicle, generally drawn by four jaded horses, urged along by a vulgar, insolent driver. There are some exceptions, some drivers being respectable, and some stages mere lumber wagons.

Railroads are of two kinds. In some the rails are longitudinal, the upper surface being sheathed with iron, are adapted to the wheels of cars, which are impelled over them with great rapidity. In others the rails are rough, unhewn, and placed crosswise of the road, for the purpose of enabling the horses and wheels to pass without sinking into the mire; they are used in marshy places, and are termed *corduroy* from their ridgy and striped appearance.

As to wagons, coaches, and sleighs, those technicalities include an almost innumerable variety of vehicles. There is the heavy Pennsylvania Conestoga wagon, drawn by six horses, guided by one line; the lumber wagon; the pleasure wagon; the express, baggage and the peddler's wagons. Coaches differ chiefly in shape, circumferences and diameters, and the relations which the bodies and wheels sustain to each other. For instance, some coach bodies are above the axles, others below; some are poised upon thorough braces, others upon cross and combination C-springs, and not unfrequently on cross *rails*. There are many vehicles comprised under the very indefinite denomination of *carriages*, which I have not thought proper to classify in distinct orders, for the very good reason that it is impossible to do so. But I will say they partake of the nature of both wagons and coaches, and frequently bear the same relation to both. It will be readily perceived by the enlightened reader, that I allude to those vehicles usually denominated chariots, phaetons, barouches, coupés, buggies, chaises, sulkies, &c. These are by no means public conveyances, but they are found in the employ of private gentlemen, and are kept at liveries, for the accommodation of pleasure parties, and of people who have been miscarried or who are benighted.

Sleighs, in a country where knowledge is so universally disseminated, must be widely known. In no civilized community, where there is a wholesome association of the sexes, is an individual to be found whose heart is not animated at the mere mention of these indispensable luxuries of a snowy winter. I know of no situation in traveling in which a gentleman is apt to feel so amiable, as when he is nicely ensconsed in furs, in a sleigh or cutter, with a pretty country cousin at his side, a fast horse and merry bells ahead. But precisely such enviable circumstances are not the boon of ordinary travelers, they are more peculiarly the pleasures of the home and the town. The traveler must content himself with the comfort of a stage sleigh, a lumber sleigh, a cutter, or wood sleigh, a sled, or jumper. By the solitary traveler, the jumper, in my humble opinion, is to be preferred over all other kinds of sliding vehicles. It is easily constructed, and easily disposed of. It consists of two hickory poles, which should be tough and pliable, placed about three feet apart and parallel with each other, with *uprights* at both ends, supporting a crate, comfortably filled with straw, and pins in the shaft portion to attach the harness. In this article the traveler moves on enjoying a reasonable portion of the pleasures of sleigh-riding, without the fear of detriment from man, beast, storm, or snow-bank, and should the snow leave him, it can be deposited in some fence corner, without much loss to the owner.

Sir Walter Scott asserts, that Dr. Johnson's chaise driving, in point of pleasure, must yield the palm to pedestrianism. Dr. Johnson was decided in his preference, but Sir Walter Scott was merely of opinion, that pedestrianism was superior to chaise riding, not intimating, however, but that riding on horseback might be preferable to both. A horse, seventeen hands high, sagacious, spirited, free and easy, with a soft saddle, and a firm rein is just the thing above all others that I should first select for traveling purposes. There is something *du militaire* in a gentleman upon horseback, above ground, dryshod, independent, ready for high deeds and daring purposes. There are no incumbrances upon him, or about him; if he meets a bridgeless stream, he swims it; if a stump, or a h e, he goes around it; if a log, or a fence, he jumps it; in fine, he rides when he pleases, and where he pleases, without danger; he stops without trouble, and travels at a trifling expense.

Besides, it is a wholesome exercise, it invigorates the spirits, clarifies the mind, and purifies the body. The muscles become full and strong, the appetite is excellent, the digestion perfect, and the blood is driven briskly and freely through every part of the system.

Again, riding upon horseback is by no means unfavorable to the cultivation of the social powers, the feelings partake of the general stir and animation of the system, and when two travelers happen to jog along together, conversation is promoted, their sympathies unite, and casual acquaintance often ripens into a permanent friendship. "If you choose to annex a pillion to the horns of the saddle you may accommodate a female companion, and he who can appreciate the value of female

society, will find this the grand climax of pleasurable traveling. It is most opportune for those Cabial contortions which are such notable auxiliaries of love and courtship and therefore very favorable to the prosecution of the latter; distance, also, is annihilated, and difficulties surmounted in this manner with remarkable facility. Again, therefore, I repeat, that all modes of transition upon land must yield to that of riding on horseback.

Velocipedes, now raging like the base ball fever, deserve mention, they consist of two wheels, one following the other, and connected by a shaft, which the traveler strides. He propels the vehicle by moving his legs, much after the manner of running.

Traveling on foot, is, upon the whole, the surest and safest method. There is no boiler to burst and scald you to death, no vessel to sink you to the bottom of the waters, no carriage to turn you over at the imminent hazard of your neck, no driver or proprietor to insult you, no toll-gatherer to stop you, no horse to run away with you and break your bones, you are entitled to the space you fill, whether it be upon the surface or under the sod, you can stand up or lie down, climb over, creep under, or circumvent; in fine, you are free and independent. There is this disadvantage, however, which though small, is still a disadvantage, you move intolerably slow, and are inevitably inclined to get leg weary in the long run.

Balloons pass more rapidly in a strong wind, than anything I have *ever seen*, except it be mere *straws;* some pretend, that they have traveled in a balloon at a rate which would have carried them round the world in a fortnight, I cannot think that such a rapid passage is so wholesome as traveling upon horseback. In a hurricane, balloons are *too swift*. They are constructed of oiled or varnished silk, covered with a netting of twine, and inflated with gas. The secret of their buoyancy is, they are lighter than the air. It is necessary to observe great care in making use of balloons, to avoid electricity and *trees*; the first explodes the gas, and the second rends the netting and silk; in either of which events, a *downward tendency* is created, which is manifestly unfavorable to repose. The continual propinquity to this awful danger, is the great objection against traveling in balloons.

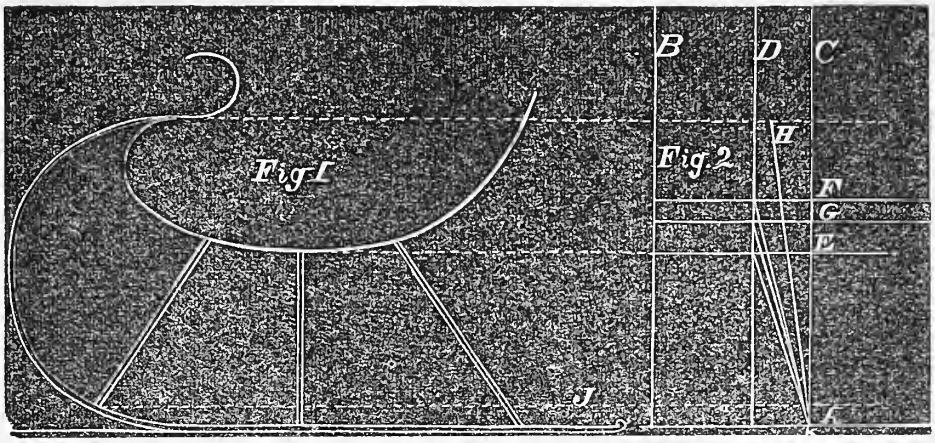
Easy Draught with Large Wheel.—G. B., in the *Scientific American*, in giving the reason why large cart wheels are easier in draught than small ones, says, the cause is, change in the angle formed on one side, by the line of draught from the axis of the wheel to the top of any object in front and against the wheel. The axis of the wheel being the apex of the angle, it will be seen that the smaller the wheel the more acute this angle will be, the line of draft being then lowered comes more behind the object to be overcome and increases the draft. If the wheel be so small that the line of draft coincides with the line of resistance the cart cannot be moved at all; he further maintains that draft has twice the leverage on small wheels that it has on large ones.

FRAMING SLEIGHS.

BY BODY-MAKER.

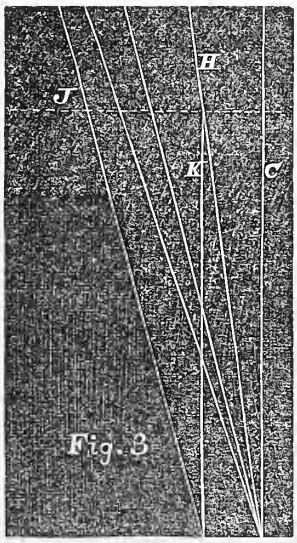
Mr. Editor:—Not having learnt my trade in a shop where sleighs were made, but having occasion since to build a few, I was led to enquire what was the rule to be observed in the framing of the beams, knees, and runners. Finding no one at hand that practiced any very definite rule, I studied out a rule for myself. I herewith give an illustration of it, hoping that if any one has a better rule, they will give it to the public for the benefit of the craft.

Having been taught to work by the square, or square rule, in everything, I have applied it in this case as far as I was able.

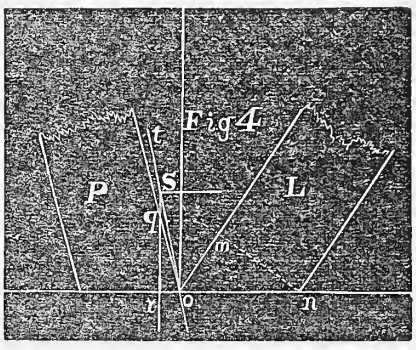


After completing the side-draft, Fig. 1, to your satisfaction, proceed to lay off for the length and angle of the knees and beams, as shown in Fig 2. First draw the horizontal base line A, at the height of top line of runner, Fig 1. Then erect perpendicular center line B. Measure from foot of B on base line A, half the width of the track of the sleigh outside the runner and erect perpendicular line C. Next determine the width of the sleigh where outside line of the knee strikes the top line of the beam. Measure half this distance from B on base A, and erect perpendicular line D. Now draw horizontal line E at the height the middle beam strikes the body of the sleigh, Fig. 1. This is the top line of the middle beam. Next measure length of back knee on side draft from the longest point of the shoulder where it strikes the runner, to the top line of the beam before it was beveled off. Take this distance and measure up from the base line A, on perpendicular line B, Fig. 2, and draw horizontal line F. This is the top line of the back beam. Measure in like manner the forward knee on side draft. Take the distance obtained and measure up from line A on center line B, and draw horizontal line G, which is the top line of the forward beam. H represents the outside line of the runner, drawn according as you want the runner to incline from the perpendicular, the lower end of H striking base line A at the junction of C and A. Now draw a straight line from the junction of C and A to the junction of D and E. This is the outside line of the middle knee, and gives the angle and length from the lower shoulder to the top of the beam. Draw a line in like manner from

junction of C and A to the junction of D and F. This gives the length and angle of back knee from the longest point of lower shoulder to top of beam. Now draw horizontal dotted line J at the height of the longest point of the shoulder of forward knee where it strikes the runner in Fig. 1. Now draw short perpendicular line K from the junction of J with H to the base line A. This will be more readily seen and understood by referring to Fig. 3, which is an enlarged section of Fig. 2, near K. The letters refer to like parts in each. Draw a line from junction of K with A to junction of D with C. This gives length and angle of forward knee. It will be seen that foot of forward knee is nearer center line B than the foot of middle and back knees. This is because the runner at the height the forward knee is framed into it is nearer center line B than it is where middle and back knees are framed into it, the forward knee striking the runner line at the junction of J and H, and the other knees striking it at the junction of C and A. See Fig. 3.

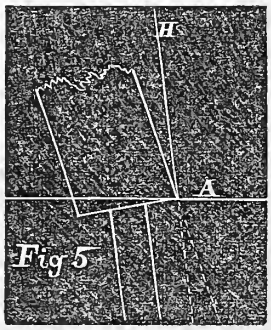


In dressing the back knee, it is necessary to bevel off the back outside corner, at the lower end, before framing, in order to have the tenon square with the runner. The amount of bevel is ascertained as shown in Fig. 4. L shows the forward slant of the knee. If it is dressed square, the point at *m*, where the dotted line crosses the back line of knee, will be the same distance from the center line as the point *n*, and the point *o* will be further from center line *n*, because of the outward slant of the knee, consequently, if the tenon is made on a square knee, it will not come square with the mortice in the runner; therefore the knee requires to be beveled before framing. The amount of bevel is obtained as follows: Lay down the forward slant of the knee, full size, as represented by L, Fig. 4. Opposite to it, lay down the inward slant of the knee, which is P. Next draw dotted line *m*, *n*, at right angles to the knee L; then, with one foot of dividers at the point *o*, continue the dotted line with the other point from *m* to *q*, where it strikes the inward slant of the knee P. Draw perpendicular line *r* through the junction of P with dotted line at *q*, to the short horizontal line *s*, the distance from the base line A to short line S being the same as from *m* to *n*, or the same as thickness of the knee. Now draw the straight line *t* through the junction of lines *r* and *s* to the junction at *o*. Set your bevel by this line, *t*, *o*, and it will be right for



beveling of the back outside corners of the back knee at the foot. The bevel at the foot of the front knee varies a little from the back knee, but so very little that the bevel of back knee will answer for the front usually.

After beveling as above, strike the shoulder-line of the lower tenon on the knee, the angle of the shoulder to be obtained from side draft, Fig. 1. After striking the shoulder-line, the knees should be scarfed off below and from the shoulder-line before gauging for the tenon. To get the amount of scarf, lay the knee to its line on draft, Fig. 2. With the shoulder-line at base line A, lay a straight-edge edge along the runner-line H, and mark off the point of the knee for the scarf, as shown in Fig. 5. In framing the runner, lay it on the draft, Fig. 1, and mark off the mortice by straight-edge, or by laying on the knee and marking by that. The angles of upper shoulders of knees and mortices in beams are obtained from Fig. 2. The bevel of the top of the beams is obtained from side draft. This beveling is done after framing the knees into the beams, but before making the tenons for the fenders.



OUR GRECIAN CARRIAGE MUSEUM.——I.

GREECE is supposed to have been settled by the descendants of Javan, otherwise Ion, the grandson of Noah. In the prophetic writings of Daniel (chap. viii., v. 21) Alexander, King of Macedon, (one of the late portions of Greece) is called the King of Javan. Among the Hebrews, Chaldeans, and Assyrians, the Grecians were known as Ionians, from Ion, the name given to Javan as before noticed. Grecian history covers the space of two thousand one hundred and fifty-four years, commonly divided into four periods, the first beginning with the petty kingdom of Sicyon in A.M. 1820, and ending with the siege of Troy in A.M. 2810—previous to which this people do not appear to have placed much confidence in chariots as instruments of war.

The second period begins with the taking of Troy, in A.M., 2820, ending with A.M., 3483. At this date its history becomes intermixed with the Persian, in the reign of Darius, the Son of Hystaspes. The third period extends from A. M. 3483, to the death of Alexander in A.M. 3641. This period was the most prosperous of its duration and probably the period when art reached its highest perfection. The fourth commences with the death of Alexander, A.M. 3641, ending in A.M. 3974, when the Grecians became subject to Roman power.

Although we have given the credit of chariot-making, as well as other vehicular construction to the Egyptians; and, as we think, shown ample proof in this volume; the question we find has been disputed both by Grecian and Roman writers.* Homer, in his Hymn to Venus, tells us that Mars first taught mortal workmen to make wagons and various chariots, while the invention of the use of

* As elsewhere shown, Egypt's greatest prosperity was during the reign of Sesostris, A.M. 2513, B.C. 1491; Assyrian, A.M. 3287; and now that of Greece about 3350. Supposing that art reached its climax among these several nations in the periods mentioned, we fix the chronology of our carriages; the Assyrian, seven hundred and seventy-four years later than the Egyptian, and the Grecian, sixty-three years later than the Assyrian.

the chariot is ascribed to Erichthonius, the fourth King of Athens, who, to hide his dragon-shaped foot, rode in one.

Pliny, another Roman author, with greater probability, says the Phrygians invented putting two horses to a

chariot and gives to Erichthonius the honor of attaching four. We are informed by Herodotus (*Euterpe*, 63) that long before King Erichthonius saw the light, the Egyptians in their religious ceremonies performed at Pampremis drew the war-god, Mars himself, seated in a miniature temple mounted on a four-wheeled carriage, thus proving that the Athenian crippled King cannot even claim the doubtful honor of having even "invented the use of a chariot," much less the construction of one.

Notwithstanding the doubt we have expressed in regard to the invention of chariots by the Grecians, still it will be conceded by every candid student of art, that in beauty of outline as well as finish, ancient Greece was far in advance of the nations preceding her in every detail pertaining to the "World on Wheels." Her carriage nomenclature was smaller than that of Rome, yet it was not an insignificant one by any means. This we shall prove hereafter from the relics of antiquity, in bronze as well as bas-relief. The first example we shall give represents a Grecian Biga, employed for domestic purposes. As appears from the engraving which exhibits a Grecian lady mounted thereon, probably making an afternoon call upon her friends, in times less formal than the present.

The chariot, highly ornamented and open behind, is very elegant in accordance with other objects of Grecian art. The following description of Juno's chariot in the fifth book of the Iliad, is beautiful and ought not to be omitted in this connection. We subjoin a literal translation: "Juno, venerable goddess, daughter of Saturn, quickly moving, harnessed the gold-caprisoned steeds, but Hebe [the daughter of Jupiter and Juno, afterwards the wife of Hercules] speedily applied to the chariot, to the iron-axle-tree on both sides, carved wheels golden with eight spokes. Of these, indeed, the felloe is of gold, imperishable; but above [are] brazen tires fastened on them, wonderful to be seen; but the circular naves on both sides are of silver; and the body was stretched on with gold and silver thongs (there was a double circular rim), from this projected a silver pole, at its extremity she bound the golden beauteous yoke, and to it attached the beautiful golden poitrels. But Juno longing for conquest and battle led the swift footed steeds under the yoke."

Another passage in this same Iliad describes the shining chariot of Minerva as having a beechen axle groaning under its weight, "for it bore a dreadful goddess and [Diomede] a very brave hero." The pages of Homer are crowded with mention of the chariot, and the poetical descriptions given in his works furnish us with some of the most beautiful passages found in the classics. Indeed, such a powerful influence has his pages had on succeeding writers, that they have tried their hands in the same line, but with inferior results.

That the felloes of chariot wheels were sometimes made of poplar is indicated by a passage found in the fourth book of the Iliad. "He [Simoisnis] fell on the ground in the dust, like a poplar which has sprung up in the moist grass-land of an extensive marsh; branches grow smooth yet upon the very top, which the chariot-maker lops with the shining steel, that he might bend [it as] a felloe for a shining chariot."

Home Circle.

THE MILLER.

BY CARRIE M. WHITNEY.

Softly the summer winds wandered about,
Toying with blossom and stream,
Whispering eloquent love tales, no doubt,
Till they tranced every thing in a dream.
Down by the old mill on a green, shady bank,
I watched the wheel rumble around,
And the stream gurgled on through its race-way of plank
With a lulling, sad, musical sound.

All nature was dreaming,—and why should not I,
As I sat by the side of the pond,
With the old mill in view through the willows hard by,
And the little brown school-house beyond?
So, dreaming, I dreamed on, of millers and mills,
And castles rose up in the air,
While breezes came wandering over the hills
And wantonly tangled my hair.

A step and a whistle! a smile and a bow!
The miller had espied my retreat,
So, dreaming longer was impossible, now,
For he helps himself down to a seat.
"O, Fannie," said he "you are weary and sad,
This teaching is wearing your life,
O come to my home—to my heart, and be glad
To lay by this toiling and strife."

How noble he looked in the strength of his youth,
And I loved him, I found in my dream!
So what could I do, but just tell him the truth,
While the winds whispered on, to the stream.
Many years have elapsed, yet so happy and fleet,
I scarce can believe they have flown,
For my life has been crowned by a rest all complete
Since that day I sat dreaming alone.

WINTER RAMBLINGS IN KENTUCKY.

BY PORTE PENCIL.

Continued from page 9.

Owensboro is the county seat of Daviess. As I remarked in my last letter, I reached this place after a smart trot from the "Travelers Home," through quite a romantic country, over high hills and through secluded vales. The city, for by that nomenclature it is known, consists of some very fine dwellings and stores, two or three hotels, several churches, and a court house. One of the hotels had raised the temperance standard, but within the mocker wine was alluringly displayed and a large box of leaf tobacco, (which is grown in the county to a considerable extent) and pipes were supplied gratis, to all who choose that mode of inebriation. The landlord expected that you would choose both, as a consideration for troubling his house. Temperance men profess to go against alcohol, yet they will drink wine, cider, ale, &c., for the very reason that they contain alcohol.

The county supervisors were in session and the town was filled with a score or more of country aldermen, with their numerous clients and petitioners. These grand seniors imbody the authority and majesty of the county, and sit in the name of the people to canvass votes, the demerits of dogs, the outrages of squirrels, to smooth highways, erect bridges, run fences, and impound stray bovines, to superintend the poor, to supervise the county; they are a useful order of men, but, at the conclusion of a canvass, they are always at the "treat." A stranger on such occasions may acquaint himself with the whole county, for the whole county, indeed, will surely be familiar with him.

I rued the afternoon I left Owensboro, for it was a terrible day in November. A cold rain mingled with snow had been falling during the morning, which became entirely snow in the afternoon. I had been but a short time on the road to Green River, when a fierce wind began to blow with unexampled violence. The thick snow was driven horizontally through the air, literally filling the eye and blinding the sight, while just sufficient lodged in the road to impede our progress. The whole forest seemed to bend before the demon of the blast, and many of the giant trees, the monument of half a century, yielding to infuriate force, were hurled with thundering crash to the ground. At one time a huge branch, wrenched from a parent trunk, was furiously driven through the air, and swept terribly close to our heads, threatening destruction in its course. My poor horse, trembling at every breath, shot from one side of the road to the other, like an affrighted hare, while his less instinctive rider, not a little heeded each successive crash, as a signal of impending doom. In the valleys, I dreaded lest the tempest should pile its victims there; on the bleak hills, its rude salutations more fully realized to me the invariableness and terror of its power. But it is in the storm, however fiercely the elements may be at strife, that man feels his superiority. The beast of the field may tremble at each demonstration of elemental violence; the fowls of the air may fly with terror before the rising blast, but man alone, of all God's creation, is calm and deliberate amidst the confusion of the tempest, He alone, knowing its cause and forseeing its consequences, may divest it of its terrors, avert its evils and turn his bark in the midst with confidence and triumph. To feel the truth of these reflections inspired in one's self is the abundant satisfaction of a traveler who is thus overtaken in his solitary way. That, indeed, was the secret of my complacency as I rambled slowly along, with a drifting path before me, and a biting blast whistling with rage and violence by and around. This exposure, with the aforesaid internal reward, was unwittingly prolonged, until I had measured five miles directly out of my course, and sunset brought me up at Mason's Ferry. The pleasure of sitting down by a blazing fire, and partaking of a warm and hearty supper, was not a little enhanced by the reflection that I had survived that most terrible storm, and was then, at least, fortified against its rude assaults, and at the same time it seemed a partial remuneration for the time and labor lost by the mischevious misdirection of a false cicerone.

The next day I reached Green River, the neighboring country is very hilly and heavily timbered with poplar; the forests of which are of immense extent, the trees large, tall, and excellent for coach or carriage work; also, the best of hickory, and *gum*, which is of such little worth for fire-wood that no account is made of it. This section of the country would be an Eldorado for some speculative contractor or manufacturer of bent stuff and hubs; the timber of which is equal if not superior to the best eastern; a market for the logs is found at this time down the Ohio River, much of it stops at Evansville, Ind., and Henderson, Ky., but a great deal of it goes to New Orleans. The logs are principally cut and hauled in the winter, the rafts are made on the ice, and are thus conveniently set afloat in the opening of the rivers in the Spring.

About four miles above Mason's Ferry there is a fine level plot of ground, considerably elevated above the bed of the river, and gradually rising into the hills as it retires, which has been selected as the site for a new city, under the auspices of the Henderson land sale, a gift enterprise. Nothing now animates that primitive spot, but now and then a chirping squirrel, a screaming jay, or a bounding deer. We do not know what name this embryo city will glory in, although, at this time, it may be styled emphatically the City of the Woods, or more literally, the City of the Imagination. It is only the city that is to be. Stand in the midst of that fine land and listen to the exuberant voice of a speculator, shut your eyes and give freedom to your fancy, and anon, by a sort of a phantasmagorian operation, the city, with its spires and domes, its storehouses and dwellings, its shipping and levees, its paved streets and brick walls, its boxes, bags, crates, and wagon loads of merchandise, its immensely busy trade, and its thousands of inhabitants hurrying to and fro in the confusion and activity of multifarious pursuits, all being summoned to the mind, you feel yourself a "looker on" as it were in the midst; but open your eyes and the illusion is gone. It was not our purpose in coming here to speculate in land but to join others in the excitement of the chase, an account of which we will give in our next. (*To be continued.*)

Eden and Babylon Identical.—Sir Henry Rawlinson says that Babylon stood on the site of the Garden of Eden, and that the Babylonian documents now extant give us an exact geographical description of man's first disobedience.

Pen Illustrations of the Drafts.

PHAETON CARRYALL.

Illustrated on Plate IX.

Hitherto it has been a very difficult thing to find a design suited to the wants of our watering places, without following the old plan of the *char-a-banc* or *vis-a-vis* of the French very closely. In the one we produce, this difficulty has been obviated by a combination of the char-a-banc with the calechè—if we may use such a term—in connection with a topless vehicle, as in this instance. The entrance here is through a door in the side, instead of at the back, which, while it affords room on the middle seat for two passengers, furnishes an uninterrupted line of seat at the hind end, for the social party, not found in any other vehicle under such *aristocratic* circumstances. The Salisbury Boot is arranged in the most fashionable manner and is both light and very becoming. This somewhat expensive carriage will be just the thing for the Central Park drive for a family.

Wheels 3 feet 3 inches and 4 feet 1 inch high; hubs 4½ by 7½ inches; spokes 1⅜ inches; felloes 1½ deep; tires 1¼ by ½ inch.

The linings ought to be blue-black cloth, as not likely to soon fade when exposed to the sun and rain, as this must necessarily be. Painting should be for finishing color English patent-black. Striping is now generally omitted on the sides of the spokes and only put on the hubs, fronts and rims of the wheels.

SIX-SEAT EXTENSION-TOP SLEIGH.

Illustrated on Plate X.

We have thus early introduced to our readers this drawing of a first-class six-seat extension-top sleigh, to remind them that the time has come when, if they intend to make such, active preparation should be undertaken for the coming winter so as to be ready for the earliest fall of snow. In the design we have thrown the top of the runners well back, giving it a rakish look, which is considered a great advantage in the appearance of the sleigh when on the street. For long travel in cold weather top sleighs are very useful, but for home pleasure rather too much confined for popularity. It will be observed that in this instance we have ignored the old double-sweep lines so long in use for the top of the side quarter, and struck out a new course in which the lines are made to assume a more graceful as well as scientific curve. This feature ought to recommend this sleigh to the attention of the public, if for no other reason.

This sleigh should track about 3 feet 4 inches, the bottom-sides be about 5 inches wide and placed about 3 feet apart on the beams, and the side swell some 6 or 8 inches. Trimmings red, green and other plushes. There are so many colors used for painting that we forbear saying anything on that head further than to recommend the "wood filling" advertised in this magazine for the preparatory coats, both on the score of expedition, economy and durability. A sleigh of this description well made would be worth about $700. In making this sleigh the manufacturer will find the rule for framing on page 37 very useful.

BUGGY SLEIGH.

Illustrated on Plate XI.

This design is an attempt to improve the Portland by an application of the coal-box buggy, which has had so successful a run for the few past years. It will make a very pretty thing for a light sleigh.

PHYSICIAN'S PHAETON.

Illustrated on Plate XI.

This very neat design, for a Physician's Phaeton, in which the pump-handle is successfully used in connection with eliptic springs, originates with our own artist, and is made with close top, which almost all physicians prefer to any other, such being less liable to get out of order in constant use, to which they are invariably subjected. Vehicles for physicians should always be trimmed with dark linings. Wheels 3 feet 6 inches and 4 feet high; hubs 4¼ by 7 inches; spokes 1¼ inches; rims 1½ inches deep. Price of this phaeton $450.

PHAETON SLEIGH.

Illustrated on Plate XII.

Our artist in this design has—we think successfully—combined the gig and phaeton, and produced something novel in the way of a sleigh. The turn-out seat fits it for carrying either two or four passengers when necessary, and when not in use the back seat may be turned in, hiding the whole from sight.

ROAD BUGGY.

Illustrated on Plate XII.

We give on this plate a novelty in the line of buggies, which with a flat panel is painted in the fashion shown in the drawing; springs 1¼ inches No. 3 steel, 34 and 38 inches long. Wheels 4 feet and 4 feet 1 inch high; hubs 3½ by 6½ inches; spokes ⅞ inches; rims 1 inch; tires (steel) ¼ by ⅞ inches. Price of buggy $300.

Sparks from the Anvil.

CARRIAGE SPRINGS.

Springs are about the most important portions of the carriage, and it is therefore not strange that great pains has been taken to improve them, ever since the day they

were first invented. Some of these improvements (so-called) have ended in failure, and we venture little in saying that for practical purposes none have yet equaled the elliptic, nor is there any probability that there ever will be. These ellipties, however, may be so much improved in detail, by the operations of machinery, as to make them more perfect than was formerly done by hand labor alone.

Acting under this belief, a gentleman in Bridgeport, Conn., has recently patented mechanism or devices of a novel character and construction for bending and hardening the leaves of springs, elliptic or semi-elliptic, including a former, so shaped and made, capable of axial adjustment, as to present faces of different curvatures for the formation of leaves of different sweeps, aud a devise for holding the springs up against stops on the former, together with adjustable and jointed benders or pressers for bearing down on the spring in bending the leaf the shape of the former. Another contrivance facilitates the introduction of water so as to harden or temper the springs while under pressure.

CASE-HARDENING IRON.

Mr. Editor,—It is perhaps not generally known amongst carriage-smiths, that the salt called prussiate of potash, which may be had of all the druggists, is now much used in case-hardening; the process is easy, and saves a great length of time.

The method is to powder the salt, and sprinkle it upon the iron, which, when in a state of redness, will be found to run like oil, and when plunged into cold water the iron will become as hard or even harder than iron case-hardened in the usual way. Among the numerous uses to which it can be applied, are the bearing of the fifth-wheels, or any other bearing where there is friction and consequent wear and tear. "Keep."

Paint Room.

ON THE SCIENCE OF COLOR.

(*Continued from page* 12.)

But the difference between the new doctrine and the old is more than a difference of terms, for the utmost latitude of interpretation can not reconcile them.

In a diagram, intended to represent in its lower part the effect of three luminous beams, red, green, and blue, falling in partly overlapping circles upon a reflecting screen otherwise dark, I have endeavored to imitate as well as I could the natural complementary colors, as seen in the spectra of white and black bands and edges, which perfectly accord with the ocular effects I have just alluded to. These colored lights produce, where the red and green lights fall together, a yellow of double brightness; where the green and blue fall together, a seagreen of double brightness; and where the blue and red fall together, a pink of double brightness; and lastly, where all three overlap, a white of triple brightness. The upper part of the diagram, on the other hand, exhibits the effects of taking away from white the same three colors, as if by laying over the white, in three overlapping circles, transparent washes of some perfect seagreen, pink, and yellow pigments, producing red where the pink and yellow washes overlap, green where the yellow and seagreen overlap, blue where the seagreen and pink overlap, and, lastly, black where all three overlap.

Except red and blue, which both admit as primaries, all the other colors differ materially. The middle primary is deep green in the one, and bright yellow in the other; the first secondary is bright seagreen in the one, and yellowish green in the other; the second is bright rosy pink in the one, and dark bluish purple or even violet, in the other; the third is bright yellow in the one, and a very red orange in the other. In the one it is endeavored to get all the colors as nearly as possible of their full strength, in which they must be as nearly as possible of equal strength, so as to neutralize each other in equal quantities. In the other, their strengths are supposed to be proportioned according to certain arbitrary rules laid down by Mr. Field, upon no sound reason whatever, and which, moreover, are not and can not easily be fulfilled. In the one, by the enlightened study of the prismatic spectrum, and the use of satisfactory methods of testing the hues and the strengths of the pigments used, we make a tolerable approach towards correctness, or at least can ascertain pretty nearly how far we err; in the other, by following rules which a mistaken theory derives from the results of mixing pigments, or super-imposing colored glasses (regardless of the fact that such a process gives neither the sum nor the mean of their separate colors), not one of the pairs of nominal complementaries neutralize each other; for the red and green compound a dark orange yellow or citrine; the yellow and purple produce a reddish mixture; and the mean between the blue and orange is a good purple—much stronger and better than that given as the color complementary to yellow.

The comparison of the natural and conventional systems of color seems to me to be much to the advantage of the former. There is a certain beauty in combinations of color devised under the latter, such as those in the diagrams for the Schools of Design; but this is attained without completeness of range or compass; without including the most powerful colors of all the several kinds, which surely ought to be included in a scheme for showing the relations of colors; and no reason is apparent in the included colors themselves why they should be placed in that particular order. The peculiar congruity of the true primaries in darkness and depth, and of the true secondaries in brightness and clearness, also tends to give, as it seems to me, a chastened richness and charm to any orderly combination of those colors which must be essentially wanting in similar combinations of the conventional primaries and secondaries.

I think, then, I am not wrong in asserting that an approach to scientific truth will be advantageous to art, and that the best natural taste may be directed and improved by understanding and observing the laws of nature. But in color true science has hitherto scarcely been in the field at all, and taste has in fact had the battle to itself, not only unaided by true science, but even misled by false or pretended science. No wonder, then, that writers on taste in color should be inclined to repudiate science altogether; and that Sir J. Gardner Wilkinson, for instance, in the

beginning of his valuable work on that subject, should make such remarks as the following:—"Every one willingly admits the great utility of rules; but we must first make ourselves masters of the subject, and be contented to seek for facts to guide us in their formation.".... "It is of more importance for the proper arrangement of colors to ascertain which harmonize in juxtaposition, than to occupy ourselves with abstruse questions respecting their properties, or the laws by which they ought to be regulated; which, though they may display great thought and scientific knowledge, are here of little practical use, and which, like the constitutions of certain wise professors, appear as plausible on paper as they are impossible in practice. From facts and actual experience we may obtain something positive and useful; from theory nothing can be expected, so long as the subject itself is not thoroughly understood, except the most vague and contradictory conclusions."*

As to the impossibility of rightly treating red, yellow, and blue, according to the same rules as primary colors, the same writer also well observes (pp. 61, 62): — "Though red and blue in juxtaposition have the appearance of purple, and yellow placed next to red gives it an orange hue, the same illusion is not caused by the contact of the other two primary colors, blue and yellow, and these do not look green when in juxtaposition, except in certain cases. Nor is the change then so marked as when blue and red, or yellow and red, are in contact. And this is one of many proofs that all the three primary colors are not under the same conditions in relation to each other. It is not, therefore, necessary to lay down the same general and invariable rule respecting the three primaries, that, in making new patterns or ornaments, red and blue should not join, nor yellow and red, nor yellow and blue, although the three combinations were exactly similar, and subject to the same laws. For yellow and blue do not deceive the eye to the same extent as the others, when in juxtaposition. Nor has red with green the same effect as red with blue and yellow, and still less have red, blue and yellow the same effect as these three colors when united in one,"—that is, according to the theory which the author received, they have not the same effect as white.

Such anomalies as those noticed in this extract are the necessary consequences of an erroneous theory. Of course, blue and yellow can not be treated in the composition by the same rules as blue and red; for blue is complementary to yellow and not to red. Still less can yellow and red be treated by the same rules as yellow and blue; for yellow harmonizes with red, itself containing the full red in conjunction with the full green, whilst it contrasts as the opposite color to blue. No wonder that red, yellow, and blue together have not the same effect as red and green together, nor yet the same effect as white; for the mean of the first combination is always reddish, and of the second yellowish, and neither of them white or neutral, whatever proportions are taken.

I believe, however, that if we dispense with false theory and admit scientific truth we shall lose these anomalies, and introduce no new ones. We shall be enabled to treat red, green, and blue under the same rules as primary colors, and seagreen, pink, and yellow under the same rules as secondaries, if only we bear in mind the differences in the depth and clearness of the pigments we use to represent them; these, of course, modifying the effects in a large degree. Two primaries of similar depth may please the eye when side by side, while the same two, equally true in hue, but not alike in depth, may fail to do so. A great step will assuredly be gained if we establish correctly the hues of the three simple color-sensations, and of their complementaries; for these, together with black and white, will give us the eight principal colors upon which to work, and will enable us to determine all the intermediate colors correctly, and to arrange them all with due regard to their natural gradations and contrasts of every kind.

* Sir J. G. Wilkinson on Color and Taste, pp. 6 and 8.

TRANSFER ORNAMENTING.

"There are many different ways of putting on the ornament, some preferring one way, others a different method, according to circumstances and individual skill. We shall endeavor to give the most simple and successful method known.

"First, let it be understood, that all pictures that show the colors complete, are only suitable for white or very light colored brown; those that are covered with a white grounding, gold metal, or silver leaf, can be used on any color, light or dark. After getting the work ready for ornamenting, give the picture a smooth, thin coat of some quick-drying copal varnish, thinned with turpentine (other preparations are used of which we will speak hereafter), being careful not to go beyond the outline of the design. Allow it to dry until it has a good tack, and put it on the work in its proper place. Roll it smooth with an India-rubber roller, or smooth it with a paper-folder, until every part adheres well. (For very large pieces, it is well to lay them, after they have the right tack, between two sheets of damp blotting-paper. It will stretch the paper and make a smooth transfer.) Now wet the paper, smoothing it down at the same time, until it has absorbed all the water possible, leave it about a minute and pull off the paper carefully. Should any parts of the design still adhere to the paper, press it down again, wet-rub it until it separates easily.

"After having removed the paper press the design on well and wash and dry it off. Should any blisters appear, prick them with a pin and press down. In a few hours the design may be varnished, which will increase the brilliancy of the colors.

"An improved method has been invented by Mr. Charles Palm, of this city, which saves time and works with more certainty. The design is coated with a 'transfer cement' of his own manufacture, without regard to outline, transferred as usual, and the traces of the cement around the design washed off, with the detergent (also his own invention), which will remove every particle of cement without injuring the colors or gold in the least. A few drops poured on a sponge or chamois skin are sufficient.

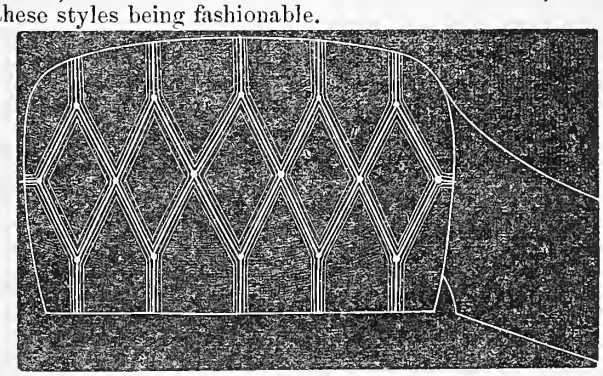
"For fine ornaments, having many fine lines and touches, it is necessary to use these preparations to make a neat job."—*Painters' Magazine.*

MONOGRAMS.—We intend to resume the publication of original monograms in our next number.

Trimming Room.

LANDAU LININGS.

THERE is another style of back, differing from the one in our last (see page 26), which is made up in large diamonds, as shown in this example, with the side squabs to match, the cushion to be made as described before; both these styles being fashionable.



DIAMOND BACK FOR LANDAU.

After this comes the top. But it is not necessary to explain the method of trimming the inside of the bows, as they are plain; but the outside leather, being the most difficult, requires to be fitted very accurately, so as to give a smooth, square corner to the roof. The webbing should be stretched over the corner of the bows, and the corners quilted either with cotton rolls or harness leather. I think the leather corner the best, with a layer of cotton over, so as to give a more perfect resemblance of a coach roof. The whole top should next be covered with burlaps or heavy muslin, and is then ready for fitting on the leather. The seam should be on the top of the roof, and two inches from the corner, as it is a very easy matter to make two semi-circles at the hinges, leaving enough unsewed so as to allow the hinge to work freely when the top is opened.

I may say that this style of carriage looks much better when open than it does when closed. In fact, there is no carriage so elegant as the landau; and, in point of comfort, it is so constructed that it can be made comfortable both in summer or winter, and is very easily adjusted to a close carriage or an open one. I think that the Morgan patent, which does away with the joints, is the most complete; for by the use of a tube, the footman can open or close the carriage, at the will of the passenger, by the use of a crank. G. W. P.

SMITH'S POCKETS FOR CURTAIN STRAPS.

WE suppose the most of our readers have read the advertisement of Mr. J. F. J. W. Peters, in our last number; if not, they have another opportunity to do so in the present issue. The "pockets" Mr. Peters advertises are an excellent substitute for leather, as appears from the specimen sent us, being both cheaper and less liable to get out of shape than the old fashion ones. In addition to the straight, Mr. Peters informs us that he makes a curved pocket, to suit the back stay. Samples are sent free by mail, which will enable applicants to see for themselves the great advantages derived from using this improved article.

Editor's Work-bench.

THE PERPETUITY OF VELOCIPEDES.

As time wears away, the question naturally arises, will these velocipedes which have created so much sensation here and in Europe continue to be popular? We answer, we cannot say; but we think we already see evidences of their waning popularity all around us. But a few days ago and these machines were in such great demand that manufacturers could not produce them fast enough to satisfy the calls of their customers, and had to work day and night in consequence. To-day this extraordinary demand has not only in a measure subsided, but machines can now be had second-handed at nominal prices, and even new ones at very low figures. Many manufacturers who went into the business with avaricious dreams of wealth, have only awoke to find themselves visionaries, the bubble having burst at the prospect of litigation for fancied infringements upon claims made without so much as a shadow of legality.

One great drawback in their ever becoming universally popular, is the idea generally prevalent, that riding a velocipede is not manly, and only fit playthings for the boys. Very few persons have sufficient courage to take them into the public streets for exercise during day light, and the number that do so under the cover of night is not by any means large. Those who do this must *sneak away* in the Central Park, or some other secluded place where they will "be monarch of all they survey," instead of being surveyed by monarchs of manliness, and we never find a man *leading* his machine along the sidewalk without feeling a certain degree of pity for him—for their countenances in such cases show them to be ashamed of the play. To get the use of these machines adopted by grown-up men, thus far, has required a room fitted up for a riding-school at considerable expense. This, in consequence of the high rents now prevailing, places the *amusement* beyond the reach of the poorer classes, so that none but the more wealthy have hitherto patronized them. As this class of persons—if in any business—have a sedentary or easy one, with very little physical exercise during the day, they find the velocipede a capital thing for after-dinner exercise during the evening, and this use, after all, is the most sensible and profitable employment for these machines, and probably will tend more to perpetuate them than anything else. But even here—in the school-room—the larger number of the patrons are youngsters, who are attracted thither by the excitements of an improvised race, or the smiles of their female friends, who usually make up a large proportion of the lookers-on on such occasions. As warm weather increases, these rich *birds of passage* hie away to the watering places, leaving the velocipede halls deserted; but we believe that when they re-

turn again in the fall, they will find their taste taking them in some other direction, finally reducing the velocipede to a mere plaything in the hands of children.

TRADE NEWS OF THE MONTH PAST.

The Morocco Manufacturers' National Exchange held a meeting (July 8) at Cape May, N. J., when about forty local associations were represented, and discussed the question of workmen's wages, the apprenticeship system, and the transportation of goat skins....The barbers in this city work from twelve to seventeen hours week days, and five hours on Sundays, at an average of two dollars per day. They now ask that their wages be increased fifteen per cent....It is expected that the next session of the British Parliament will repeal all laws making combinations illegal, and relieve workmen from special penalties for trades union offences, and bring their funds within the provisions of the Friendly Societies Act.... Five men (all Irish), moulders in a shop in Williamsburg, N. Y., demanded an increase of ten per cent. in their wages, which being refused they struck. Others afterwards were put in their places, but were induced to leave through persuasion of the original strikers. For this interference the men have been arrested and put under bonds in $1,000 each to answer before a grand jury for conspiracy....Several members of the Potters' Association in Trenton, N. J., have now (July 14) been on the strike for nearly five months, only six of the seventeen establishments having acceded to the demands of their employees and paid the scale of prices to date. In consequence, fifty of the strikers have had to leave their homes and seek work elsewhere, some going so far as to go back to England, their native country. The association having exhausted its surplus funds, has now sent two men out to solicit aid from other trade associations, to keep up the strike still longer....Korn & Brothers, capmakers in this city, thinking to hoodwink the unionists, proposed to the thirty girls in their employ to have spurious prices concocted, thus: one wages book in which was to be inscribed the recently adopted union tariff, to be shown the union, and another the lower and real wages they were to receive, which led, on discovery, to the withdrawal of every workman and workwoman in their employ....The miners and operators in the coal mines of Pennsylvania, have formed a copartnership, the operators receiving a portion of the profits, which tends to make fuel dear—$9 per ton in New York. It is really amusing, now, to hear "the poor laboring man" grumble at the high price of coal, and declare such a combination *a shame*, never for once reflecting that the tendency of all combinations is to the same result.... The Brokaw Brothers, clothiers in New York city, have sued a man named Ames for leaving their employ, and laid the damages at $10,000. This case, we presume, is to be a test one, and will no doubt prove interesting in its results to both capitalists and laborers.

NOTES OF FOREIGN INVENTIONS.

Safety Stay.—A gentleman in Halifax, Nova Scotia, has invented a *safety stay for carriages*, by jointing one end of a flat bar of iron to the outer wheel iron of the shaft, by means of the bolt commonly called the dragon tongue bolt, the stay being capable of being turned in a vertical plane on this bolt. The other end of the stay is connected to the shaft at the distance of a few inches from the shaft bolt by means of a light collar bolt. The said collar bolt works in a slot in the end of the stay, the head of the collar bolt bearing against the outer side of the stay, and a collar and curved washer bearing against the inner side of the stay.

Cabs.—R. A. Gould, of Birmingham, England, claims to have made some improvement in *cabs*, by which he places the door at the back of the body of the carriage or cab, so that it opens outwards; and arranges the driver's seat in front and on the roof thereof. The axle he places near the front of the body and directly under the driver's seat. The passenger's seat is located in front, over and parallel to the axle, in such a way that he faces the door at the back of the cab, concealing the horse from view entirely.

STORY OF A HORSE AND BUGGY.

The *Buffalo Express* tells a capital story of how a gentleman outwitted a livery-stable keeper in that city a few days since. It is as follows:

"C——p, an *attaché* of one of the Pennsylvania railroads, but well known in Buffalo as an inveterate practical joker, happened in Cleveland the other day, and the weather being mild and warm, he conceived the happy idea of taking the fair object of his adoration out riding. Donning his best suit, he started post haste for the nearest livery stable. He was a partial stranger in the vicinity, and the livery-stable keeper, not knowing him, and imagining possibly, from the state of nervous excitement in which he presented himself, that 'something was up,' refused to let him take a horse and buggy.

"'But,' remonstrated C——p, 'I am good for a dozen horses and buggies.'

"'Very well, then, leave me some security,' demanded the suspicious liveryman.

"'How much do you consider your rig worth?' angrily asked our friend.

"'About $350.'

"'If I buy it now, and pay you $350 in cash, will you agree to buy it back again for the same sum when I get through with it?' asked C——p.

"'Certainly, sir,' politely responded the owner, who thought he saw a chance for a good bargain.

"'All right; here's your money,' and jumping into the vehicle, C——p drove off to the residence of his expectant Angelina.

"Of course she was ready, and of course a pleasant drive was enjoyed. Up one and down another of the beautifully laid out avenues of Cleveland they rode, breathing the fresh and balmy atmosphere of a glorious spring day, admiring the handsome residences which line the streets, C——p talking sweet nonsense all the while, and Angelina looking as if she felt herself transported to the seventh heaven of delight.

"For two hours did the happy couple ride and admire the newly developed beauties of nature, when the sinking sun reminded our hero that official duties awaited his attention; and leaving his fair companion at the door of her residence, he drove back to the livery stable.

"'Well,' said he to the proprietor, 'you see I am here again, and I presume you are ready to buy this rig back.'

"'Yes, sir, I trust I am a man of my word,' coolly responded that individual, at the same time handing C——p $350 in greenbacks, which our friend quietly stowed away in an inside pocket, and was moving off, when—

"'Hold on here,' cried the liveryman, 'you haven't paid for your two hours' use of this 'ere horse and buggy!'

"'What do you mean?' in turn responded C——p. 'Didn't I buy that horse and buggy of you two hours ago?'

"'Yes.'

"'Well, then, what do you mean by asking me to pay for the use of my own rig?' retorted C——p, as he moved off with well-assumed indignation, while the stable hands and bystanders smiled audibly."

FASHIONABLE GOSSIP.

AT Tarrytown, N. Y., General Lloyd Aspinwall drives a showy four-in-hand and tandem turnout; Collector Grinnell, a plain substantial establishment; Wm. Moller, the sugar refiner, a very stylish equipage; the Hon. Wm. E. Dodge, a buggy similar to the shocking old vehicle in which Peter Cooper is drawn around the streets of New York; Rushton, the Broadway druggist, an antiquated affair; E. S. Jaffray, a handsome open carriage; Mrs. Remsen, of Fifth Avenue, an imported London landau. One of the handsomest equipages on Staten Island this season is owned by Udolpho Wolfe, who is summering there with his family. A Boston lady at Swamscot drives four-in-hand; and another Hub belle boasts of seven Saratoga trunks she carries with her full of elegant dresses. Many of the Newport "cottagers" drive four-in-hand.

EXTRA GOVERNMENT MEASURES.

THE Government officials in this city are taking extra measures for securing revenues, and accordingly have lately warned several cart and hack owners to make detailed accounts of their business as common carriers, to be taxed thereon, although, as now appears, the question was considered as having been settled four years ago adversely for the Government. Commissioner William Orton then gave it as his opinion that "while railroads, steam and canal boats, stage-coaches, and omnibusses are employed to convey property and passengers over established routes between fixed points, it is the business of carts and hacks to gather up property and persons, and to deliver them at the points of departure on such routes, and it was therefore impolitic to require further returns and payments from the persons engaged in the business under consideration." This decision ought to have settled the question until the law is changed, we think.

LITERARY NOTICES.

THE *Atlantic Monthly* for July is an unusually interesting one. The contents are: "The Drummer Ghost," "Birch Browsings," "The Foe in the Household," "Thomas Crawford, a Eulogy," "Gabrielle de Bergerac," "Three Years a Negro Minstrel," "The Restored Picture," "Marrying a Pickpocket," "The Greek Goddesses," "Our Inebriates, Harbored and Helped," French and English Art-writers and Reviews, and Literary Notices. Subscription, $4. Boston: Fields, Osgood & Co.

Our Young Folks, published by the same firm, is decidedly the best work of its kind now issued from the monthly press; always filled with fresh matter, and illustrated with fine engravings from original designs by the best artists in America. Every householder should have a copy.

Fishing in American Waters, by Genio C. Scott, with 170 illustrations, is one of the most delightful books issued from the press this season; second only in general interest to Old Isaac's "Complete Angler," and for the American lover of "the gentle art," much more instructive and entertaining. No angler should be without a copy. Published by Harper & Brothers, New York.

Carriage-makers will find much information in their business, and may save to themselves more than the cost, by keeping in their workshops a bound set of THE NEW YORK COACH-MAKERS' MAGAZINE, which not only treats of everything in detail appertaining thereto, but likewise exposes the frauds committed by unprincipled men upon the craft during the last eleven years. The ten volumes may be had for $40, sent free by express on receipt of the price.

Wedlock; or the Right Relations of the Sexes; disclosing the laws of conjugal selection, and showing who may and who may not marry, is the title of a new work just published by S. R. Wells, Editor of the Phrenological Journal. Price, $1.50. This work should receive the careful study of every person seeking a partner for life.

EDITORIAL CHIPS AND SHAVINGS.

HOW THEY RIDE IN PEKIN.—The only public conveyances in Pekin are covered carts without springs—strong, unwieldy vehicles, made for endurance more than comfort. In fact, the torture in riding in one of them through the rough, unpaved streets or broken highways can never be described. The passenger gets in and sits cross-legged on some cushions, with the curtain drawn in front to prevent being smothered with the dust. A little window of gauze on each side admits the only light to cheer your misery, and you desperately brace yourself against the sides or back, expecting a dislocation of your frame at every jolt. There is not a vehicle on springs in Pekin, and with the present streets or roads one would

ELECTIONEERING UNDER THE WOMEN'S-RIGHTS ADMINISTRATION AS IT WILL BE IN 1870.

be quite useless. The carriage which Lord Macartney brought the Emperor as a present from the English government in the last century has never been used. Ladies and men of rank or wealth are carried in palanquins borne by coolies. A Pekin cart costs as much per hour as a cab in London, and a palanquin with four coolies is equal in expense to a carriage in New York.

Wall Street Livery Stable.—The visitor to Wall street in these days of speculation in stocks, where fortunes are made and lost on the same day, and bulls and bears rule, has little idea of what was going on there ninety years ago. To show we give the following advertisement from an old newspaper:

"The subscriber has excellent Livery Stables next door of Mr. Maxwell's, in Wall street.

He has a Phæton and pair——a Lady's, and a gentleman's Horse to let, on the following terms:

Phæton and pair, Two Shillings per mile, or Two Shillings per hour.

A Saddle Horse, one Shilling per mile, or hour.

The proprietor to have his election to be paid for time or distance. ☞ *By distance it is meant, that if Haerlem is eight miles, the Phæton is Sixteen Shillings; and a Horse Eight Shillings.* Stephen Rogers.

N.B. A Servant shall attend for the Phæton on horseback, &c., &c."

Strange Cuttings-up in Connecticut.—The *Republican Standard* says: Bozrah is shaken to its social and commercial centers by recent curious and inexplicable phenomena. A two story dwelling house, unoccupied, was found standing on its head, in the middle of the street, in an exceedingly undignified manner. This took place at night, and the agencies are not known. The other phenomenon occurred in broad daylight, and can be vouched for. A team wagon, loaded with three tons, and standing in its usual place of rendezvous, suddenly started towards a vacant lot, broke over a board fence, and continued running till it had broken an axle, and was otherwise damaged. Previous to this performance, it had been standing soberly in the same spot for twenty hours. There was no visible motive power whatever. "Can such things be?"

Velocipedes in Paris.—Velocipede building now forms an important branch of trade in Paris. There are not only manufactories of these new locomotives, but foundries where the iron work of which they are composed is cast. One of these employs two hundred and fifty workmen, and finishes twelve velocipedes per day for a coach-builder of Lyons. A Lyonese velocipedist is willing to take any bet that he will beat the fastest trotter in a race.

Crowded out.—In consequence of the crowded state of our advertising pages we have been obliged to lay over our name-plate list, and advertisement of Dole Hubboxing machine, to another month. Those particularly interested will find the lists of the present prices in our June number, and send in their orders accordingly. In connection with this notice we embrace the opportunity to say that we cannot undertake to send these articles on time. They must either be paid for when ordering, or C. O. D. Those not our subscribers and strangers *must* send the cash with their orders.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKER'S MAGAZINE.
New York, July 21, 1869.

Apron hooks and rings, per gross, $1.25 *a* $1.75.
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 8c.
Axles, plain taper, 1 in. and under, $5.50; 1⅛, $6.50; 1¼, $7.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $7.50; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half pat., 1 in. $10; 1⅛, $11; 1¼, $13; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅞ in., $11.00; ¾, $11; ⅞, $12.00; long drafts, $2.50 extra.

☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.

Bands, plated rim, 3 in., $1.75; 3 in., $2, larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Bolts, Philadelphia, list. 30 off.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 18 *a* 23c.
Burlap, per yard, 14 *a* 16c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, $1.75 *a* $2; velvet, $2.75 *a* $4; oil-cloth, 45 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $2.50 *a* $3.00, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $15 *a* $22.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.75 *a* $2.
Enameled cloth, muslin, 5-4, 40c.; 6-4, 75c.
Enameled Drills, 48 in., 55c.; 5-4, 50c.
Do. Ducks, 50 in., 75c.; 54, 70c.; 64, 80c.

☞ No quotations for other enameled goods.

Felloe plates, wrought, per lb., all sizes, 20c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.50 *a* $2.00.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.

☞ For a buggy-top two pieces are required, and sometimes three.

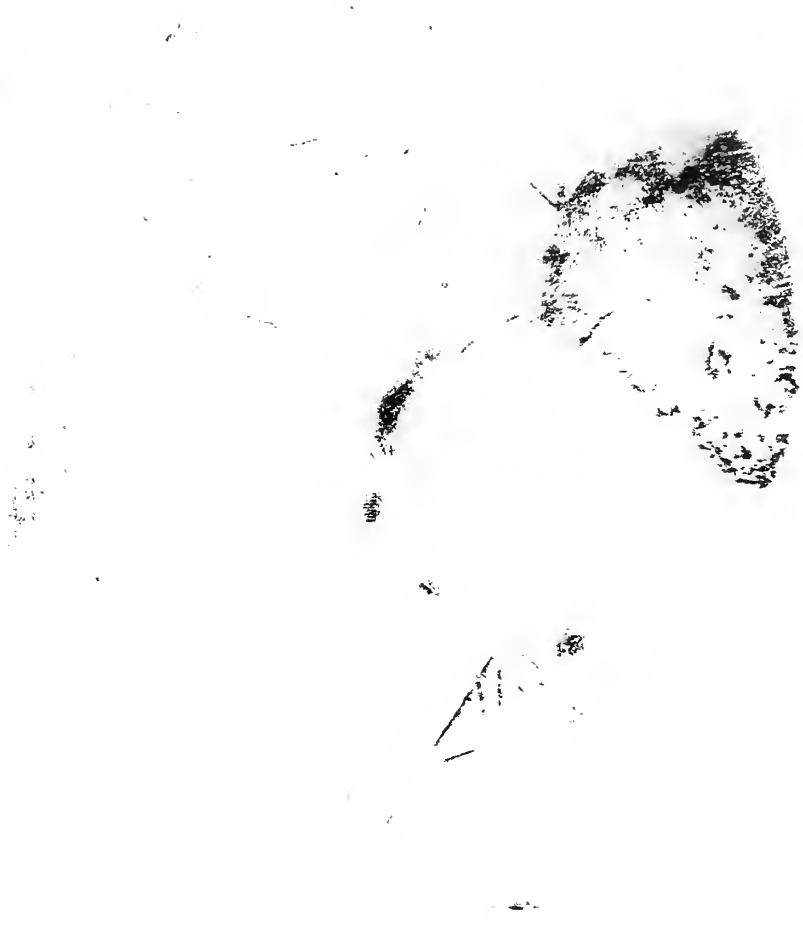
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $1.75.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach, $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 26c.; railing do. 24c.; soft dash, No. 1, 15c.; do., No. 2, 13c.; hard dash, 15c.; split do., 15c.; No. 1, top, 26c.; enameled top, No. 1, 26c., do., No. 2, 24c.; enameled trimming, 24c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates. (See Advertisement.)
Oils, boiled, per gal., $1.25.
Paints. White lead, extra, $13.00, pure, $14.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $6 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Sand paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's 30 per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Serims (for canvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 16c.; bright, 18c.; English (tempered), 21c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.

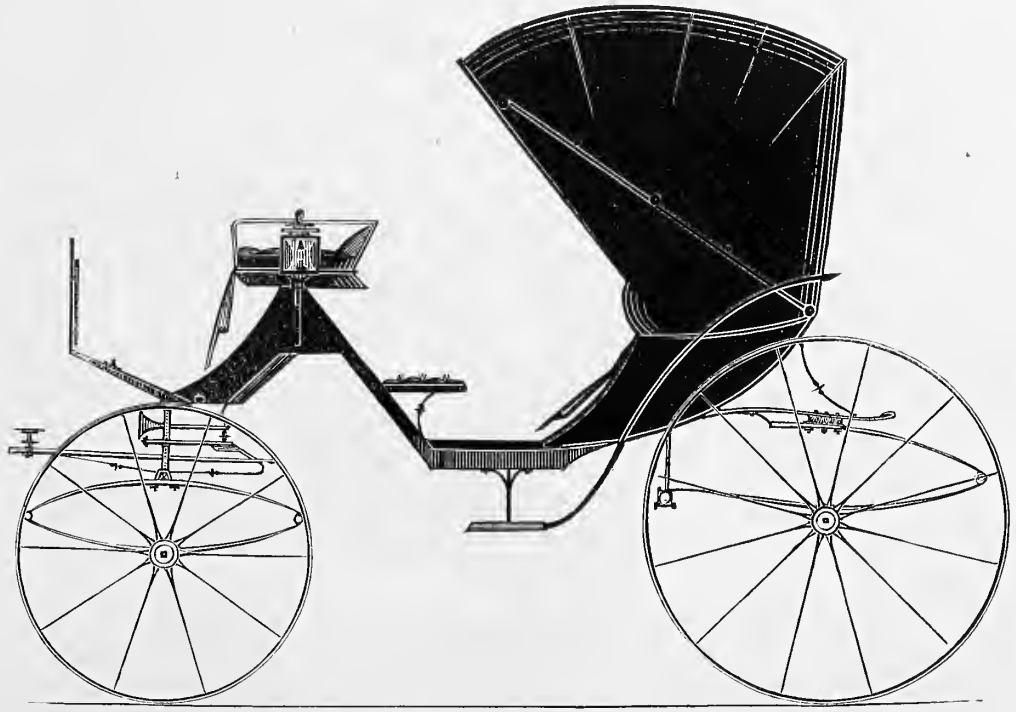
☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.

Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.

☞ For extra hickory the charges are 10c. *a* 12½c. each.

Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 15c.; 1-4 x 1, 15c.; 3-16 x 1 1-8, 16c.; 3-16 x 1, 16c.; 3-16 x 7-8, 17c,; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35, gold.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close-plated nuts and rivets, 75*a*80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2 Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 60c
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.00; nonpareil, $5.25.
Do. English, $6.25 to $7.50 in gold, or equivalent in currency.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Whiffle trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.

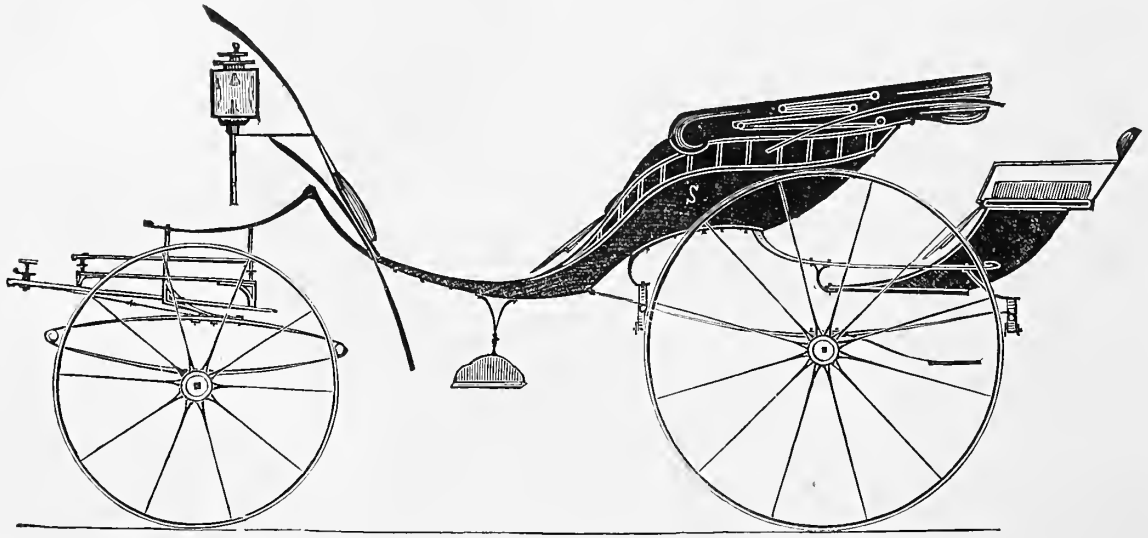




AMERICANIZED VICTORIA.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

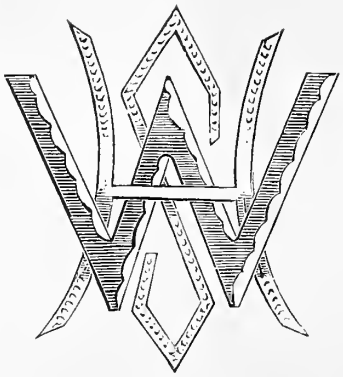
Explained on page 55.



PHAETON WITH FALLING-TOP. — ½ IN. SCALE.

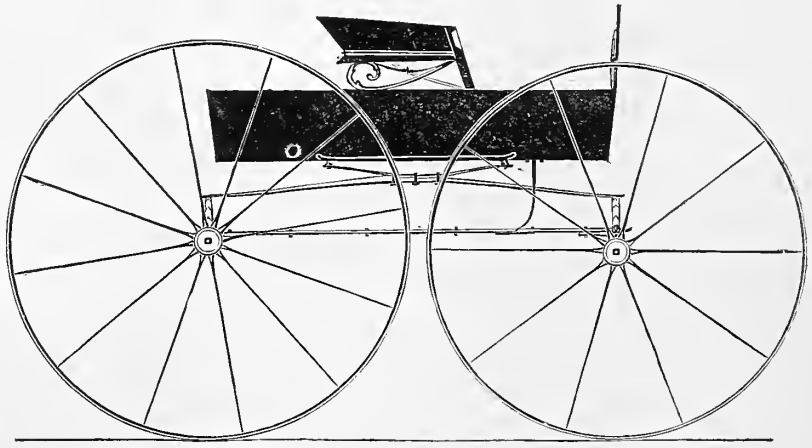
Designed expressly for the New York Coach-maker's Magazine.

Explained on page 55.



ORIGINAL MONOGRAM.—H. W. S.

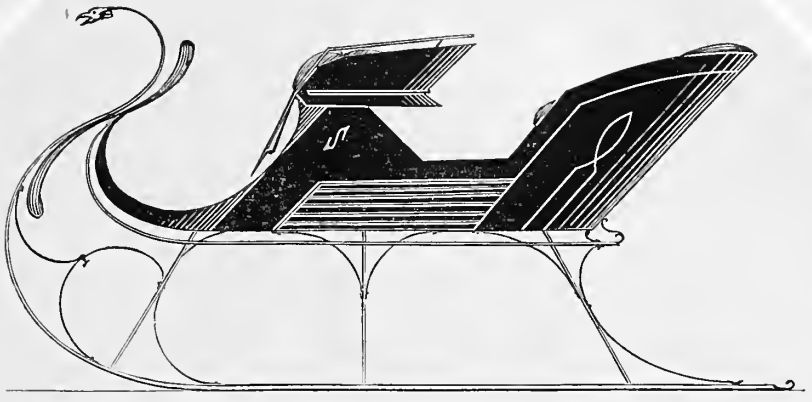
Explained on page 58.



SIDE-BAR BUGGY.—$\frac{1}{2}$ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

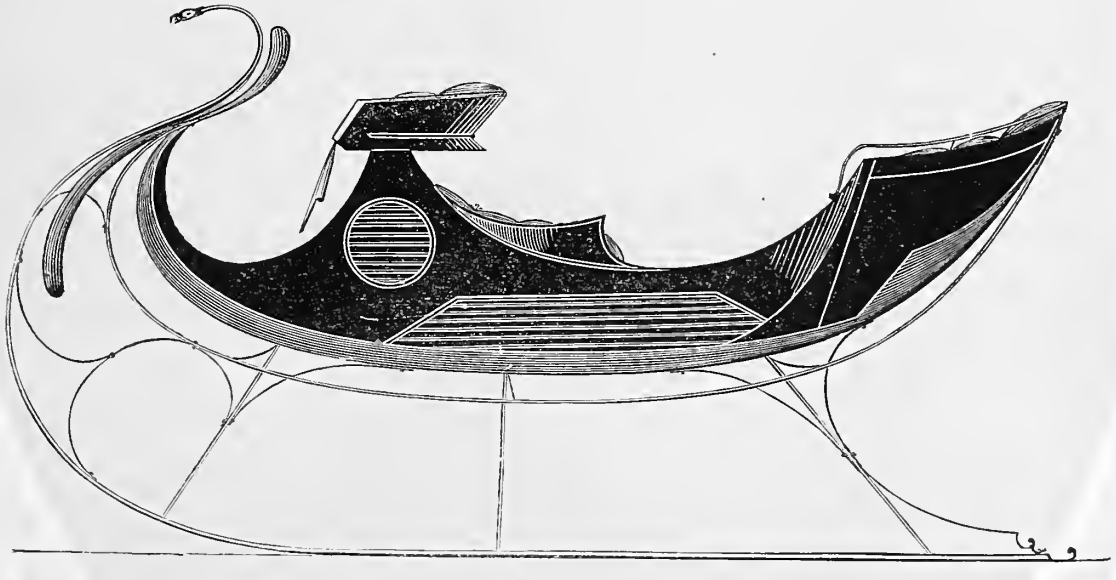
Explained on page 56.



IMPROVED CUTTER SLEIGH.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine

Explained on page 56.



SIX-SEATED FAMILY SLEIGH.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 56.

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XI. NEW YORK, SEPTEMBER, 1869. No. 4.

Mechanical Literature.

THE ADVENTURES OF THREE JOURS.

BY H. S. WILLIAMS.

CHAPTER IV.

Gloner had been to work but a few days ere Christmas eve came. As he was putting up his tools prior to quitting for the day, Mr. Hardy came in and exclaimed, "Well, to-morrow is Christmas again; of course you will follow the time honored custom of the South, and not work any more until after New Year's; the holidays are our great season of festivity, and here's a fifty for you, as you may need a little change in the meantime."

"But, my dear sir," replied Gloner, "that is more than I have earned; besides, I have money enough to meet all necessary expenses."

"Oh, well," returned Hardy, "that makes no difference, fifty paid now, will be fifty less to pay on settling day," and he forced the bill upon him. "You see," he continued, "we are a generous sort of people down here, all the reports you may have heard to the contrary notwithstanding; I have just served Loring the same way, and have invited him to a social party at my house to-night, and should be pleased to see you too; you will there see how we manage to usher in the holidays, which is a little different from Northern customs. Of course you will come, the fact of your being a stranger makes no difference. You see here we take every man to be a gentleman until he proves himself a rascal; in some localities they take every stranger to be a rascal until he proves himself a gentleman. So come round to-night, and I think that to-morrow you will say Mobile is about the best city, socially speaking, that you ever saw."

"I thank you for your kindness," replied Gloner, "and if Loring is agreeable I shall be only too pleased to accept your invitation."

"No more work for a week; glorious times here for a *cub*, hey? why my boss always used to begrudge me Christmas day, and I always worked on New Year's," said Loring, as a few minutes later they gained the street. "And, by the way, Hardy invited you to his 'social gathering' as he called it, to-night, of course."

"Yes, he gave me an invitation."

"And you propose going?"

"Yes, I have come to that conclusion if agreeable to you."

"Of course I want to go; these evenings are getting rather lonesome, and it would relieve the monotony of our boarding house wonderfully to have a pleasant place to pass an evening at now and then, and a good looking girl to talk to. So, as Margrave would say, if he was here, 'let us not stand upon the order of going, but go at once,' and as a preliminary step we will 'to the barber with our beard' as the fellow said in Hamlet the other night."

After their supper, and a most elaborate toilet on the part of Loring, they proceeeded slowly up Government street, towards Mr. Hardy's residence. Through the assistance and superior taste of Loring, Gloner presented a very presentable appearance. As their names were announced by the black servant at the door, in stentorian tones, they were met by Mr. Hardy, who exclaimed, "glad to see you both, and as you are about the only strangers present, we will make the circuit of the rooms and introduce you." Your true Southerner is great on introductions, and he will introduce you at all times and places, to all kinds and manner of persons, and during the next half hour Gloner and Loring had made more bows and shook more hands than they had ever done in a month before; in fact Gloner's hands ached, and all the names that he had heard, from the famous Smith family down to Thompson with a P in it, were so sadly confused and jumbled up in his head, that he really could not name a single person in the company five minutes afterwards. Just then some one cried out, "Gentlemen secure your ladies for a quadrille," and at the same time the band, consisting of two violins and a banjo in the hands of three primp young darkies, struck up the prelude, for which Gloner mentally blessed them. It so happened that Loring was introduced to a very handsome young lady at the same time, whom he immediately secured for a partner. while Gloner's last introduction was to a middle aged gentleman, who immediately commenced talking on the past, present and future state of the country, and as Gloner had no great taste for dancing, he willingly adjourned to a corner and devoted a couple of hours to the political situation.

In the meantime, Loring, who was, in truth, a most

excellent dancer, was enjoying himself finely, and was fast ingratiating himself in the good graces of the ladies, as well as making himself a general favorite with the gentlemen.

Gloner and the gentleman with whom he was talking had undoubtedly settled everything of a political nature satisfactorily, for he had just turned to leave, when Mr. Hardy came up, and seizing him by the arm, exclaimed, "Why Gloner, my dear sir, why don't you dance? You don't seem to enjoy yourself, it is a dull place for you I fear, but come, I want to introduce you to a lady friend of mine, none of your city belles but a plain country girl and as pretty as a Venus, come this way;" and before Gloner could say a word he found himself on the opposite side of the room.

"Miss Linden, allow me to present a friend of mine, Mr. Gloner. Mr. Gloner, Miss Linden—Lucy I always call her, and I know you will admire each other;" and as Gloner raised his eyes to the fair young face before him, his surprise was only equalled by the pleasure he felt in beholding his *vis-a-vis* of the supper table in his trip from New Orleans.

"Miss Linden," he said, bowing low." I am really pleased to make your acquaintance, for this is not the first time we have met, as I trust you may remember."

For a moment she hesitated as though recalling the past, and then replied, "I do remember now, we were fellow passengers on the Oregon a week since."

"Exactly," he returned, "and I need not tell you that fortune has favored me by this introduction. I am far from being an impulsive person, and I have met thousands of fair young faces without bestowing a second thought upon them; yet, believe me, when I say that I have wished many times to look upon yours again."

"I fear Mr. Gloner," she replied with a smile, "that you are an adept in the universal accomplishment of your sex, namely, flattery." "Then I regret that I have spoken so plainly," he answered, "for the only accomplishments which I can boast when addressing a lady, are sincerity and truth. Do you dance in this set?" "I am not engaged for it," she answered, "and would prefer resting, as I fear I have already over-exerted myself, as my health is rather delicate."

"The very favor I would have asked of you, and if agreeable we will escape this noise and excitement, for one could find but little rest here," said Gloner as he led her from the room.

At the rear of the house was a broad piazza where the guests retired to cool themselves after the heating mazes of the dance, and thither our couple made their way. It was a lonely place, enclosed with lattice work and trailing vines, while the moonbeams struggled through and fell in broken splashes on the floor.

"Our host informed me that you are not a resident of the city," said Gloner.

"Merely a visitor," she replied, "I live in the interior of the State, but we generally pass our winters in the city. It is a fashion we Southerners have—rather a foolish one too—and there is not a day passes, while away, but what I repeat poor Payne's line, 'There is no place like home.' And it is only to please papa, who thinks that the salt breeze of the coast benefits me, that I consent to leaving it."

"True," replied Gloner, "Home should be the great center of all our hopes, our aspirations, and our affections, but how few American homes posssss all these requisites, or even one of them. A true home is where one can lay down all his cares at its threshhold, and enter without a thought upon the great world outside, or a mind to mingle with its busy scenes."

"You must have a pleasant one to speak so feelingly on the subject," she replied.

"Pardon me," he answered, "one does not speak feelingly of what one does possess. The reverse is the rule. We only speak feelingly of that we are striving for, and which we hope to gain at some future period. Home may be likened to the terminus of a railway, a boarding house is one of the way stations. I am stopping at a way station."

"Waiting for the next train I suppose," she said with a smile.

"No, not the next, for I am far from ready; it makes me tremble sometimes when I think of it, and realize how far off it is. I have to make a competence first, then seek for a suitable companion ere I take passage, for I am one who believes that there is no true felicity unless one is happily married. When I accomplish those two things I hope to have a home, which, even though it may be humble, will prove a happy one."

"I fear you are waiting to accomplish too much before marriage, and then you will be too fastidious to find a companion to suit you. You must not look for perfection in our sex."

"No I shall not, but I shall look for three things, and they are imperative—Truth, Honor, and Love."

Just then supper was announced. It was a sumptuous repast, with every delicacy of the season in the greatest abundance. There were oysters in every style that one could call for, and fruits of all kinds, from oranges just picked from the tree, to strawberries, ripe, fresh and luscious, as well as all kinds of jellies, and cakes, and tarts, and wine to be found in the market. Now Gloner was a lover of good living, and the hour passed at the the table was really a pleasant one, for he had not only every delicacy that could please the palate, but the more he saw of his companion the more he admired her. She took such a sensible view of things, she was so well informed, she talked so well, and then she was so retiring in her disposition and so modest withal, that no wonder he was charmed with her.

After supper was over he passed another half hour with her, when a servant announced her carriage.

"Twelve o'clock already," she said, "really the evening has passed away very rapidly."

"Thank you for the compliment," returned Gloner; "and may I dare to express a hope that our acquaintance thus pleasantly begun may continue."

"Certainly," she replied; "we are stopping at the Battle House, and I shall be pleased to see you at any time."

"Depend upon it, I shall avail myself of the privilege," he answered, as he handed her in the carriage, and in another moment she was gone.

Returning to the ball-room, one of the first persons he met was Mr. Hardy, who saluted him with, "Well, Gloner, how do you like Miss Linden?"

"I was well pleased with her, considering the disadvantages under which all labor at a party like this," he answered.

"Certainly; well, the more you see of her the more

you will admire her," returned Hardy. "Poor Lucy! it is a pity her health is so bad, for she has everything to make life pleasant. She is motherless, and an only child, with great wealth, a pleasant home, and the fondest of fathers, so that her every wish is gratified; and it only proves her amiable disposition, else she would have been spoiled ere this."

The two hours that passed before the breaking up of the party were long ones to Gloner, and he found it useless to attempt to get Loring away before that time.

"I tell you what it is," exclaimed that worthy, after he had seen his last partner safely stowed away in her carriage, "if Mobile isn't the most sociable place I ever saw! Why, I never enjoyed myself so well before. It would take about twelve months up in Ohio for me to get as well acquainted as I have here to-night. Why, I've had enough invitations to call to keep me busy during the entire holidays, and every one asked me to bring you along. We are going to have jolly times here, I do assure you. I wonder if it would be the same if they knew I was a dauber—hey?"

"Yes, among all whose good opinion is worth striving for," answered Gloner, slowly, then relapsing into silence, he seemed wrapped in his own thoughts. Not so with Loring, however. The evening he had passed had a most exhilerating effect on his spirits, and he talked incessantly about his supposed triumphs, and the good times in anticipation, until they separated for the night.

The week that followed proved a delightful one to both our friends. Everything was so new and so amusing to them, particularly to watch the darkies, who had flocked by the thousands in the city, and who could be seen and heard at all hours of the day, and night too for that matter, playing on "de ole banjo," or singing their favorite plantation melodies. For a week they were emphatically free—as free as any wild Indian that ever roamed the plains, for they could go where they pleased, do about what they pleased, and no questions were asked, nor no passes shown. Every kitchen was a free lunch restaurant, where they could drop in, and Aunt Dinah was always ready to provide freely from her overstocked larder.

Loring improved the advantages gained on Christmas eve, and was busy with his calls, in some of which Gloner accompanied him, but generally he went alone. Nearly every day he dined out, and every evening he accompanied some lady to a ball or the theater, and the only thing that seemed to trouble him was the evident fact that the holidays would soon be over.

Of course Gloner called on Miss Linden; and such a warm, kind reception did he receive that he called a second time, and on New Year's eve he accompanied her, with a party of ladies and gentlemen, to the grand ball of the "Cowbellions," to which he was fortunate enough to procure a ticket, which was an honor that many an old citizen would be proud of. As he bid her good-by that night, he obtained her consent to accompany him in a drive down the Bay Road the next afternoon, and in the evening they were both invited to a ball given by the Irving Association.

The Bay Road is perhaps the finest drive in the United States; at least we have never seen anything to equal it. It runs along the bay shore for miles, and being built of oyster shells, and kept in the most thorough repair, it is as hard and level as a floor. And then the scenery is charming as well as romantic. To the east the broad bay rolls its dark waves, covered with shipping from every part of the civilized world, while to the west, after leaving the charming suburban villas that extend three or four miles from the city, the road is lined with thick forests of pine and magnolia, their evergreen foliage forming a most pleasing contrast, one being light and the other almost black. It was down this road, in one of Mr. Hardy's best "turnouts," that Gloner and Miss Linden pursued their way on that lovely New Year's afternoon. Going down, the beautiful residences, the gay equipages that they met every few minutes, the broad bay and dark forests formed topics of conversation; but when they returned homeward, after a delightful lunch at Knoblock's, their conversation took a more individual cast, and they talked of domestic life, of books, and of each other's tastes, like old friends in confidential converse. We have not the space to present that conversation, however interesting it might prove, else our friend, the editor, would broadly hint that we were lengthening our humble story to undue proportions. Enough to know that when Gloner left her at the door of the Battle House, their mutual regard and admiration for each other were highly enhanced by the afternoon's drive.

Never had Gloner nor Loring a better time than at the ball that night. Everybody seemed determined to enjoy themselves to the fullest extent, and hilarity and good-humor reigned on every side. "It's the last of the holidays," they would say, "so let us enjoy it to the fullest extent."

The next morning work commenced again, and then Margrave, who had been neglected too long, was remembered, and a note was dispatched to Montgomery for him, also one to the postmaster at that place to forward all letters addressed either to Loring or Gloner. A week elapsed, and then a couple of letters were received which proved to be from Margrave; one, written at Hernando, Mississippi, stating that he had concluded to remain there a month or so; the other, written a couple of weeks later at Panola, which contained the entertaining piece of information that he had left Hernando in a hurry, arrived in town the day before, and had woke up that morning to the pleasing realization of the fact that his room-mate had robbed him during the night and decamped. "Must get something to do here," he added, "even if I have to hire out as assistant bar-keeper in this one-*mule* hotel, for I'm broke completely."

A letter was at once dispatched to him at that address, urging him to come to Mobile; but as week after week passed away without an answer, they concluded that Margrave had got lost in the vast swamps of Upper Mississippi.

In the meantime Gloner had finished his contract, and so well pleased was Mr. Hardy with the work, that he made another, wherein Gloner got enough work to keep him busy for three months at least, at the best of prices.

"Now if I only had a trimmer here," said Hardy one day, "I would be all right; but perhaps one will come along one of these days."

"Get some material," said Gloner, "and I think I can manage to get you one or two jobs trimmed, at least."

"What do you want?" asked Hardy.

"A couple of hides of enameled leather, two sides of dash, a roll or two of duck, and a few yards of buckram. There is enough curled hair and moss round the stable to stuff all the cushions."

In a day or two all the articles were forthcoming, and then Loring took an open buggy, and after three days'

work on it pronounced it finished; and in truth, considering his being out of practice, it was a very creditable job.

When finished, Mr. Hardy was called up, and his astonishment was only equaled by his delight to see such a job completed and ready for the road.

"Did you do that, Loring?" he asked. "Why, I had no idea you were a trimmer too. Really, this is lucky. I thought Gloner here was going to do it all the time. Well, well, that is a splendid job, and no mistake."

"I was raised in a carriage shop, so to speak," said Loring, "and consequently learned how to trim before I took up painting. And now let us make a bargain. Of course I agree to my bargain for your painting, and when I work at that it will be at the same figures as we have already settled on. But if you wish it, I will devote say three days in the week to trimming, at so much a job."

"Certainly," replied Hardy, "that is all right, and would suit me exactly. Let's look at the jobs that need trimming, and we can soon make a bargain;" which they did, at figures which promised a handsome income to Loring.

Thus the winter passed away, and spring came, but the change was so slight as to be scarcely perceptible. And then, as summer came on, our two friends concluded it was best to try their fortunes up the country. "There is no use in going," said Hardy, "and if I had work for you, I would not listen to it; for I tell you, Mobile is the healthiest place in the United States, barring our epidemics; and we never have yellow fever before the last of July, and New Orleans always tells us when it's coming." But as work was going to be slack in the city during the hot weather, they determined to go up to Montgomery, at least, when they would be guided by circumstances as to their future operations.

(*To be continued.*)

TREATISE ON THE WOODWORK OF CARRIAGES.

(*Continued from page* 19.)

As this treatise will doubtless come under the notice of many readers, who are even ignorant of the first principles of elementary geometry; we think it best to define the principal terms that will be employed. Moreover, in order to facilitate the demonstration, we have had recourse to means that are not generally employed in similar works. Therefore to avoid all false interpretation and confusion, we will formulate the principal and indicate the respective solutions on figures represented in perspective and in the most favorable position for the purpose of showing the lines, the surfaces, and the framework on which our demonstrations bear. The future operations will be solved on plans adopted by the projections.

On the other hand, we have treated the patterns in such a style that the reader's attention will not be too closely taxed. For this reason we have divided the demonstrations in order to place the smallest number of annotations on the same figure. Notwithstanding all these precautions, we recommend the readers, who have not made themselves familiar with the geometrical terms, to study those mentioned in the chapter of preliminary principles. When the meaning of the term is well understood, the difficulties will be considerably lessened.

The most expansive operation in the art of sketching, by means of the various manners by which it can be resolved, and by the number of lines that it includes, is that consisting of the construction of the *dihedral* angle. [Dihedral comes from two Greek words, δις twice, and ἑδρα, a seat or face; meaning here an angle with two sides or surfaces.—Ed.]

The construction of the dihedral angle can be performed in three different manners: 1st, on the direct angle; 2d, on the angle opposed to the top; 3d, on one of the supplementary angles. Let us, however, take note that each of those operations can be done either on the vertical plane, on the horizontal, or on the auxiliary plane, giving therefore nine different ways of constructing the dihedral angle.

The manner of proceeding by either of these systems is however not a matter of indifference, especially in practice, this will be proved hereafter; but we must now mention that it is well to study them all. We even invite the reader to construct them on paper, in order to become familiar with them the sooner.

The chief obstacle that will present itself in the construction of the dihedral angle, to those who have not studied descriptive geometry, and many are included in this category, arises from a want of knowing where to commence the work, owing to the absence of reasoning. In fact the construction must be made with six or twelve lines according to the method adopted. Therefore, which line can be commenced with it if it is not known which order will be carried out?

In order to remove these difficulties, we will preface each problem by a solution, indicating the path to be pursued and the means whereby to solve the operation. The results of construction that then follow must only serve to justify the solution on which the reader must concentrate his entire attention.

CLASSIFICATION OF WORK.

PART FIRST.

Representation of the body; the generation of surfaces; the construction, in its full size, from an upright, the projection of which is fixed; the construction, in its full size of a surface of which the projection is given. Rectilinear angles; the construction of the dihedral angle.

PART SECOND.

The formation of some geometrical curves; the formation of some geometrical surfaces; the formation of the rounding of a phaeton; the formation of swelling or sweeping bodies; the intersections of irregular surfaces, and the effects they produce; the formation of oblique surfaces; ideas on mounting carriages; usual dimensions; the joints; the method by which to trace the framing of the principal bodies.

PART THIRD.

Properties of the substances of the various kinds of wood used in the woodwork of carriages; how to distribute them; how to store them in order to insure speedy dessication, and how to work them.

Dictionary of technical terms usually employed to indicate the various portions of carriage woodwork.

PRELIMINARY PRINCIPLES.

I. Definitions.—The definition, says Montferrier, in his Dictionary of Mathematics, "is the specification of the figures that distinguish an object, or the enumeration of single ideas that form a composed idea." Definitions are general or particular: therefore, when the plane is defined, that is a surface on which a square can be applied to all parts alike, so as to be perfectly coincident, the definition is general, because it can be applied to all planes. But if another idea is added to this general one, in order to indicate either the position of the plane, vertical, horizontal or inclined, or its relation to another plane, perpendicular, oblique, in which case the definition is particular.

In general, all geometrical figures are created and constructed according to the definition that always precedes the demonstration.

In these preliminary notions we only define the geometrical figures that are absolutely necessary to illustrate our demonstrations, which only bear on the figured surface; that is, we do not consider the objects for the purpose of fixing the dimensions by comparing them to the units of length, surface or volume, but merely to represent them in their size and in their bearing to each other.

II. The appellation of body, solid or volume, is applied to all objects that pass the three dimensions of length, breadth, height or depth. The bodies that we have specially under consideration, and which are produced by the application of woodwork to the construction of carriages, are designated under the names of bodies, boxes and frames.

III. By substracting either of the above-mentioned dimensions, so that only two can be considered, the idea is formed of a surface. The bodies, and the boxes, and also all their framework are separated from the space that surrounds them by surfaces.

IV. In the same manner, by substracting one of the dimensions from the surface, there will be only one space left either in length, breadth or height; this space is called the line. Surfaces are bounded by lines in the same manner as bodies are bounded by surfaces.

V. If a line so diminishes in length that it becomes beyond all given quantities it is called a point. The conception of a point is that it has no extent, but merely indicates a position in space, either the extremities of a line or the crossing of two lines.

VI. The generation of elements will be obtained by proceeding in an inverse sense. When a point is moved a line is created, the same result that follows the movement of a pencil upon a sheet of paper. By moving a line, a surface is created; the edge of a knife, the blade of a saw are lines that create surfaces when used to cut or dissect any object. By moving a surface, a solid is created; a half-circle turned around its diameter creates a sphere.

VII. Two surfaces meet on a line that is called their line of intersection. The junction or crossing of two lines is called their point of intersection.

VIII. There are two kinds of lines, straight and curved. The straight or direct line is created by a point following the same direction towards another. Hence it arises that there can only be one straight line between two given points.

A curved line is created by a point that continues to change its direction; there are several kinds of curved lines, but in geometry notice is only taken of those whose points observe a regularity, so that they can always be determined. All curves that are not subject to a mathematical law are regarded as a creation of fancy.

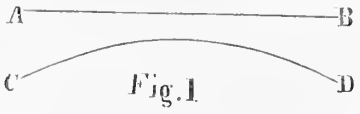


Fig. 1

A B (*fig.* 1) is a straight line, and C D a curved line.

IX. A plane surface, as mentioned above (Art. I.), is that on which a square can be brought to coincide in every sense. In carpentry a plane surface is physically obtained on the frames by dressing them with a long plane. This preliminary operation is applied to all parts of frames without exception before being tenoned; because on these planes the tracings of the other surfaces have to be made, and frequently the principal lines of the framework. Therefore, the terms of planes, planed surfaces, planes dressed by the plane, are synonymous. In the course of this work surfaces will generally be designated by the name of planes. We often employ this word also for the conception of imaginary surfaces that will be supposed, as if, in reality, the frames were to be cut according to certain determined positions. These imaginary surfaces are especially employed in the construction of dihedral angles.

X. A curved or bent surface is one on which a square cannot be made to bear on all parts; as with curved lines, there are various kinds of curved surfaces, and geometry only acknowledges those in which all the points of which they are formed can be rigorously determined.

In the following we suppose that the lines and surfaces are traced on planes.

XI. Angles.—When two uprights, A B and A C (*fig.* 2) meet they form an angle. The point A is the top of the angle and the uprights A B and A C are the sides. The angles are indicated by the letter placed at the top, when it is alone; and by three letters, by placing the top one in the middle, when there are several angles around one point. In the first case it would be angle A, and in the second the angle B A C or C A B.

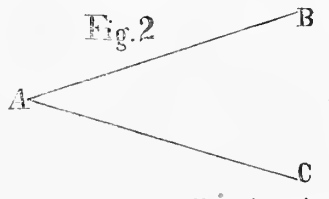


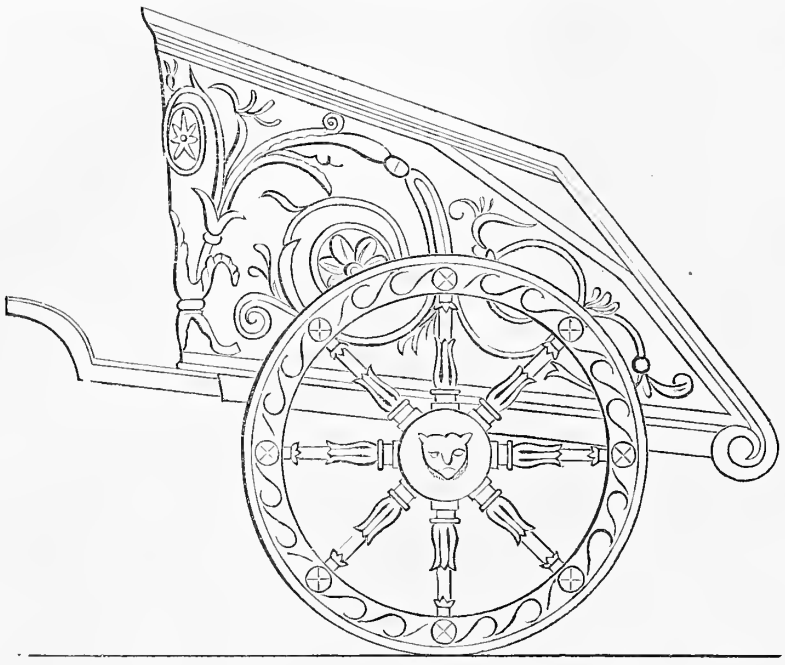
Fig. 2

(*To be continued.*)

OUR GRECIAN CARRIAGE MUSEUM.—II.

The engraving which we here give represents an ancient chariot now preserved in the Museum of the Vatican at Rome. Its gorgeousness would seem to warrant us in believing that Homer's poetical shadings only described real objects. Modern art could hardly excel it either in model or finish. The scroll work is creditable to the genius of the nation with which it originated. With such models before his eyes, is it any wonder that the Mantuan bard took a lofty flight when alluding to them, or that his countrymen esteemed them so highly, that when at rest with the horses unhitched, the chariot was taken into the tent, and protected from dust by a covering provided for the purpose.

The more common way with the Greeks was to harness two horses abreast in their chariots. These, according to Homer, were "fed on lotus," "lake-fed parsley, white barley and oats" from "Ambrosial mangers," to



GRECIAN CHARIOT.—FROM THE MUSEUM OF THE VATICAN.

which his fair maned steeds were bound. The same author tells us that the name of the horses of Achilles were respectively Kanthus and Barius, leading us to infer that it was customary in those early times, as now, to give names to horses of distinguished worth.

In the Grecian language war-chariots were called *Diphros* (two-seated,) and sometimes, too, *synous*, or "double-team." These were of various kinds. Pausanius says that the temples and other public buildings of Greece were decorated with trophies, some of which were bronze. He particularly refers to bigas and quadrigas—twenty-four in number, filled with one or more human figures, accompanied by couriers and men on foot. These, as we shall hereafter find, were thus, with other spoils, consecrated to the gods, out of gratitude for success in war.

VEHICULAR ODDITIES.

ASIDE from the bicycle, the oddities of which—both in construction and operation—have amused the public for a number of months past, a vehicle is a very common place affair, whether looked at as a buggy, a cart or a wheelbarrow; yet this class of apparatus has been the subject of much inventive effort, not always well or wisely expended, but giving from time to time apt and odd illustrations of perverted and useless ingenuity. These devices include, not only plans for making vehicles of cylindrical form, and others for propelling them by a series of claws or feet, but as well, some fifty, more or less, different endless traveling railways, a score and a half of carriages moved by impelling legs or levers, and at least a dozen fitted with screw propellers to insure the requisite progression. In addition to these there have been perhaps forty systems of constructing wheels with elastic peripheries, many of them including the use of tires inlaid with india-rubber, gutta-percha, and the like. Some of these out-of-the-way and useless devices are very old, and have been revived in recent times. An example of this is seen in the application of propelling feet or legs to one or two self-propelling steam-plows proposed within the past year or two; in the endless track of the well known Boydell plowing apparatus, invented in substantially the same form in England by one Edgeworth a century ago, and the germ of which existed before his time in an obscure memoir of the French Academy.

No one, however, has been found adventurous enough to revive the plan brought forward many years since of substituting the wheels of a vehicle by spherical ones, which, it was believed, would be better adapted for moving over soft ground. Neither has there been any revival of the far-fetched method of working the traveling carriages of agricultural implements by electric currents from fixed galvanic batteries, proposed by the sanguine Henry Jinkers, in 1840. The plan, however, of making vehicles in the form of cylindrical drums is reinvented every little while, in shapes ranging from a steam-carriage for common roads to a velecipede. It would seem quite probable, moreover, that this form of apparatus might, in some cases, be used for the purpose for which it was patented some seventeen years ago in England—the transportation of night soil, sewerage, and the like.—*American Artisan.*

STAGE-RIDING.

THE pleasures of stage-riding are little known to the great majority of people living this side of the Rocky Mountains, railroads having generally superseded that mode of traveling. The "Colfax party" had a taste of them, however, in their passage from Cheyenne to Denver, and Mr. Bowles gives us a description, which will remind not a few of our readers of the experiences of former days:

"In stage-riding it is peculiarly true that it is the first night that costs. It is more intolerable than the combination of the succeeding half-dozen, were the journey prolonged for a week; the breaking-in is fearful, the prolongation is bearable. The air gets cold; the road grows dusty and chokes, or rough and alarms you; the legs get stiff and numb; the temper edges; everybody is overcome with sleep, but can't stay asleep—the struggle of contending nature racks every nerve, fires every feeling; everybody flounders and knocks about against everybody else in helpless despair; perhaps the biggest man in the stage will really get asleep, which doing, he involuntarily and with irresistible momentum spreads himself, legs, boots, arms and head, over the whole inside of the coach; the girls screech; the profane swear; some lady wants a smelling-bottle out of her bag, and her bag is somewhere on the floor—nobody knows where—but found it must be; everybody's back hair comes down, and what is nature and what is art in costume and character revealed—and then, hardest trial of all, morning breaks upon the scene and the feelings—everybody dirty, grim, faint, "all to pieces," cross—such a disenchanting exhibition! The girl that is lovely then, the man who is gallant and serene—let them be catalogued for posterity, and translated at once; heaven cannot spare such ornaments, and they are too aggravating for earth."

SWEEPS FOR SCALE DRAFTING.—VI.

SWEEP FOR SCALE DRAFTING.

We now give another pattern for sweeps—being the sixth in the series—which will be finished in about three numbers more. These will be found of great value to such as contemplate practising scale-drafting in carriages, and may be obtained at a cheap rate, providing they are cut from rosewood veneers after the manner we have before intimated in these pages.

SLEIGHING IN RUSSIA.

When the roads are rough, the continual jolting of the sleigh is very fatiguing to the traveler, and frequently, during the first two or three days of his journey, throws him into what is very properly designated the road-fever. His pulse is quick, his blood warm, his head aches, his whole frame becomes sore and stiff, and his mind is far from being serene and amiable. In the first part of my land journey, I had the satisfaction of ascertaining by practical experience the exact character of the road-fever. My brain seemed ready to burst, and appeared to my excited imagination about as large as a barrel; every fresh jolt and thump of the vehicle gave me a sensation as if somebody were driving a tenpenny nail into my skull; as for good nature under such circumstances, that was out of the question, and I am free to confess that my temper was not unlike that of a bear with a sore head. Happily, however, I kept it pretty well to myself, and as my companion was affected about as I was, we managed not to disagree.

Where the roads are good, or if the speed is not great, one can sleep very well in a Russian sleigh; I succeeded in extracting a great deal of slumber from my vehicle, and sometimes did not wake for many hours. Sometimes the roads are in such wretched condition that one is tossed in his vehicle to the height of discomfort, and can be very well likened to a lump of butter in a revolving churn. In such cases sleep is almost, if not wholly, impossible, and the traveler, proceeding at courier speed, must take advantage of the few moments' halt at the stations while the horses are being changed. As he has but ten or fifteen minutes for the change, he makes good use of his time, and sleeps very soundly until his team is ready. —*Harper's Magazine.*

Pen Illustrations of the Drafts.

AMERICANIZED VICTORIA.

Illustrated on Plate XIII.

Ever since the great exhibition in London, in 1851, this description of vehicle has, under modified forms, been very popular among certain classes of customers, and with good reason, not simply on account of its lightness, but because they also make an exceedingly stylish and airy turnout for a small family. Our drawing is from an original design in which the artist has studied lightness with remarkable success. Not only has he adopted the latest points of Parisian art, but has combined therewith many decidedly American, the whole making—in our judgment—a very handsome design. The reader will observe with some interest the new mode of applying top-joints adopted in this instance.

Wheels 3 feet and 3 feet 10 inches high; hubs $3\frac{3}{4}$ inches by $6\frac{1}{2}$ inches; spokes $\frac{7}{8}$ inch; rims $1\frac{1}{8}$ inches; tire, steel, $\frac{1}{4}$ by $\frac{7}{8}$ inch. A cant with a little alteration, readily made—applicable to this vehicle—will be found on page 53, volume X. Price of this phaeton from $1,000 to $1,200, according to finish.

PHAETON WITH FALLING-TOP

Illustrated on Plate XIV.

These Phaetons are very convenient for summer watering places, being hung off low so as to make them

easily accessible for the ladies, by whom they are principally used. A "rumble" has been attached in this instance for a groom, a thing seldom done in this country, although very common in Europe. The top should be made to take off at will, so as to make it a Poney Phaeton. The top of the back quarter may be left open as in the drawing. Color of the body vermillion, with fine line black stripe near the mouldings; carriage blue, with black and white stripe, this last fine on the wide black one. Linings dark blue cloth.

Wheels 3 feet and 3 feet 10 inches high; hubs 4 feet by 6½ inches; spokes 1 inch; rims 1⅛ inches deep; tires $\frac{5}{16}$ by 1 inch, homogeneous steel. Price about $650.

SIDE-BAR BUGGY.

Illustrated on Plate XV.

SQUARE-BODIED buggies are again gradually coming into fashion. The one we have under consideration, has been hung on side-bars in combination with a side-spring of single-leaf steel, which makes it look much lighter than when constructed in the old way. The details applicable to this portion of the buggy will be found among the "Sparks from the Anvil," published with this monthly part of our Magazine. The size of the wheels (the lightest made) are given in detail under the head of "Coal-box Road Buggy," on the 10th page of this volume.

IMPROVED CUTTER SLEIGH.

Illustrated on Plate XVI.

THIS elegant design is the contribution of an esteemed friend who takes considerable interest in this Magazine. It is different from anything we have yet seen in the line of sleighs, and therefore quite novel. The builder will have to exercise some skill in constructing the round back. The mock-blinds and scroll on the back quarter may be done in colors. A sleigh built on this model does away with the old leather rester formerly used, which soon got out of order and proved very annoying to persons of good taste.

SIX-SEATED FAMILY SLEIGH.

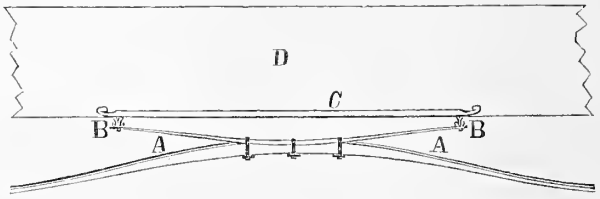
Illustrated on Plate XVI.

THIS is another beautiful design from the same ingenious friend who contributed the preceding one to our columns. This sleigh should track about 3 feet 4 inches. The bottom side will require to be about 6 inches wide to furnish the requisite width for getting a suitable swell, and secured to the bearers with stout screws or light bolts at least 3 feet apart. The color of paint is a matter of so much taste with different individuals that it is only a work of folly to prescribe for others in this matter. The trimmings usually employed are plushes of different shades, red and green predominating.

Sparks from the Anvil.

STEEL COMBINED WITH WOODEN SIDE-BAR SPRINGS.

A CERTAIN class of customers are very partial to the wooden side-bar mode of hanging up very light no-top buggies, such being much stiffer, and freed from the tremulous motion found where elliptical springs are employed, and, therefore, much better adapted to taut-rein driving. The greatest objection to them, heretofore, has been, they were a little too stiff for easy trotting, and a little too clumsy—as formerly made—for gracefulness in appearance, when contrasted with other portions of the same vehicle, to which they have uniformly been applied. Various plans have been resorted to for remedying these difficulties; but among them all, we have seen none which has pleased us better than the one adopted in the buggy, on Plate XV, of which we give an enlarged view, with this article.



In the diagram, AA is a single-leaf spring, nicely bedded on the top of the side-bar, and secured thereto by three light clips, the side-bar itself resting on half springs at the ends. BB are the ends of two cross-bars on which the body D rests; and C a light wooden bar connecting with the ends of bars BB, through which it is bolted to the ends of the spring.

SHOEING HORSES.

WE have recently read Capt. Cockerel's report issued by the War-office, on a new system of shoeing horses introduced by Monsieur Charlier, of Paris.

As doctors are usually very fond of horses, and may be supposed to have their own opinions, we venture to give ours. No doubt many objections to the old system can be urged.

The process adopted by farriers of cutting away the strong and constantly renewed horn on the sole of the foot appears to be physiologically incorrect. The shoes are almost always too heavy, are often badly placed, and contain too many nails. It has often occurred to us that some plan should be devised for fixing the shoe in such a way that it could be readily removed or replaced. Farriers will no doubt ridicule the idea of taking off a horse's shoes like those of a man when he goes to bed; but, however novel the idea may be, it is, we are convinced, anything but ridiculous in principle. Let it be granted that nature has constructed the feet of the horse on a plan very different from those of his rider; but no one, unless he were intoxicated or mad, would voluntarily think of sleeping in his boots. A dead weight of iron through which the foot sustains a series of incessantly repeated concussions during the day, can have no other effect than that of causing an unnecessary expenditure of force with a commensurate amount of fatigue; and the comfort of the animal, as well as the requisite development and growth of the foot which have to take

place during periods of rest, cannot be properly accomplished when heavy iron shoes are constantly maintained upon it.

We nevertheless do not see any plan of doing away with the nails to fix the shoe to the foot; but if they must be employed, they need not be *misused* as they generally are. Horse-shoeing may be best compared to man-shoeing. Man and beast both suffer; but the former has made an advance lately, in consequence of his being able to express his feelings pretty loudly to his shoemaker, and insist on being properly and comfortably fitted. We have considered M. Charlier's theory from the time it was first promulgated, and we confess we are not convinced that its great superiority is such as to demand its adoption. If the ordinary horseshoe be studied in connexion with the foot of the animal it is intended to fit, the shoe will commonly be found to be wrong in the following particulars: It is made too narrow at the fore part and too wide at the back. It is fixed with eight nails, extending all round, and confining the heel; while the tender parts of the foot are left exposed and fitted to catch every sharp stone. The shoe ought to be rounder than that made by farriers, and secured by five, or at most six nails round the toe.

Good fitting does more to hold the shoe on than the nails; but this gives the smith more trouble, and he finds it easier and cheaper to drive in a lot of nails all round, and does so.

M. Charlier is right, we think, in deprecating the cutting away the frog, and this need not be done with ordinary shoes more than with his; but cutting and trimming makes the foot look neat, and, therefore, grooms and smiths like it.

It is very probable that the best, easiest, and safest form of shoe would be something between the Turkish round plate, with a hole in its center, and ours, because what the horse misses in the ordinary shoes is a support for the heel, on which the weight of his body rests and the elasticity of his action depends. This class of shoe, called a bar-shoe, clumsily made however, is frequently used with horses when they have weak heels or corns, and it is found that they can work well in such a shoe when they cannot in one of a common form.

There is, however, a strong feeling against it, because it is customary to suppose that a horse is unsound which wears shoes of this description.—*London Lancet.*

Paint Room.

IMPROVEMENTS IN COACH PAINTING.

BY J. S. LEGGETT.

Is it going to require three long months to paint a carriage when discoveries have long since been made to convey messages thousands of miles within a flash of the vivid lightning? when machinery has been invented to carry us over the ground on wheels at the rate of sixty miles per hour? We are living in a country which is the seat of civilization, refinement and luxury. Mechanical intelligence and enterprise is fast taking labor from the hand as it were, and placing before it a more inexhaustable power. So it is useless for us to argue the propriety of the old and long process in carriage painting, yet many claim it is the only proper method. Men have not discovered ways of painting carriages by machinery, but they are making vast improvements in materials used. It was once thought necessary to take ninety days to paint a coach in order to have a durable surface; but, at the present time, some of our largest establishments in this line of business are turning out very beautifully finished vehicles in twenty-six days. The old system of lead painting has been abandoned by a large number of shops, and an article called "permanent wood-filling," has been substituted. We formerly applied a coat of oil priming and let it remain at least seven days, after which gave the body from three to five coats of lead, letting each coat stand three or four days before the English filling or a similar substance was applied. We now give the job one coat of the wood-filling, and after it has remained four days only it is ready for rough stuff. And I will say here I sincerely believe if the following coats are properly prepared and applied over the wood-filling, the latter will make a more durable surface than the first. At the same time we have used less stock, exhausted less labor, and finished the work in less time, giving better satisfaction to the customer, to the employer and to ourself.

Do not think I am recommending this system of painting for the benefit of the invention, or the manufacturers of the filling. No; to the contrary. I am writing for the benefit of carriage builders and painters at large, for no doubt some have condemned the above system simply because they have not tested it properly or long enough to become acquainted with its nature, or to appreciate its merits.

In conclusion allow me to ask one question, has there ever been any substance introduced in a paint shop, that, when only one thin coat is given (previous to the color), will protect a carriage, especially the iron work, through the test of weather and climate equal to the Permanent Wood-Filling?

LEAD POISON.

Lead Poison—Painter's Cholic—is evidently the result of slovenliness on the part of the workmen, for such only appears to be troubled with it. Not long ago, a walking-stick maker in London, who used white lead in his business in fastening on the tops of fancy sticks and whitening them, died under such peculiar circumstances, that a jury of inquest was summoned to inquire into the cause, which, after due consultation, returned a verdict, "that the deceased expired from the mortal effects of lead poisoning." During the investigation it was ascertained that this poison had not been inhaled in the paint room, in breathing, as many workmen suppose it is; but had been taken into the stomach from the hands, with his food, in consequence of his neglect to wash them properly. There are many other paints besides lead which are exceedingly poisonous in their natures, and cannot be used with impunity, without exercising great caution. Painters should never eat until they have thoroughly washed their hands with soap and water, and, as an extra protection, rinsed out their mouths well. We feel assured that those who follow this advice will not need to take medicine to counteract the evil, but will be safe from its effects.

R. S.

PINK COLOR IN WHITE-LEAD CORROSIONS.

BY WILLIAM BAKER, F.C.S.

In some contributions to the metallurgy of lead, published in the *Philosophical Magazine*, in 1862, I attributed a certain pink tint, occasionally seen in white-lead corrosions, to the presence of small quantities of copper. As the results of any experiments upon the corrosion of lead, by the combined action of fermenting bark, acetic acid vapor, and atmospheric oxygen, can only be arrived at after the expiration of ten weeks or three months, the progress of further investigation in this matter has been necessarily slow. I have been unable to isolate the coloring matter; but I wish to correct the statement that the pink color is due to copper, and to detail some conclusive proofs that it is caused by finely divided silver.

Having obtained many tons of lead which contained only traces of copper, I found, in several instances, the pink color still quite evident in the corrosions. By the method which has been employed for refining the metal, there could be only silver left as an impurity in any perceptible amount. I therefore sought for evidence that this substance could produce such a result. Upon analyzing five thousand grains of a perfectly white corrosion, and one which was distinctly and uniformly pink, the result showed that the composition of the two samples differed mainly in the amount of silver:

	Cu O.	Fe O.	Ni O.	Ag.	
White corrosion...	.0050	.0022	Trace.	.0005	per cent.
Pink corrosion	.0060	.0022	.0013	.0058	"

A small quantity of silver was then added to a portion of the lead which had produced the white corrosions, and this was again submitted to the corroding action. The result was a decided pink carbonate. This synthetical experiment was repeated many times, with a like result, upon various samples of lead which had before produced a white carbonate; and I find the pink color begins to show at the edge of the metallic portion left uncorroded when the silver amounts to more than one-half ounce per ton of lead. A decided color, which is uniform throughout a mass of the corrosion, is obtained when the silver amounts to about one and a half ounce per ton. A fracture of a dense corrosion often shows the crystalline character of the metallic lead, which is defined to some extent by the pink color—as if the silver had segregated out a certain faces of the lead crystals. By the addition of a small quantity of arsenic or antimony, the pink color was replaced by a dull purple; and a clear pink tint was only obtained when all the oxidizable metals had been removed.

I come now to the discussion of the state in which the silver exists to cause a pink or reddish reflection of light. Silver does not oxidize under the conditions of exposure to acetic acid vapor and oxygen of the air. Moreover, oxide of silver and silver carbonate are themselves decomposed and reduced to a metallic state by a heat below that attained in the stacks of fermenting tan. The silver must consequently be in the metallic state. As confirming this statement, I made the following experiments: Silver carbonate was titurated with white lead and water and then dried. Upon increasing the temperature, a delicate pink tint became visible upon the reduction of the oxide of silver. If a small quantity of silver carbonate be precipitated along with lead carbonate, the color, upon drying and heating, is more uniform, and it may be obtained exactly resembling the tint seen on white-lead corrosions.

The color of the photographs obtained by means of silver salts is also evidence in favor of the metallic state of the silver; and I may also adduce the fact, that a ray of light, when reflected ten times from a polished silver surface, is distinctly of a reddish color.

ORIGINAL MONOGRAM.

Illustrated on Plate XV.

The Monogram printed on Plate XV., is a contribution from a friend, Mr. Willie Fest, of this city. In it are combined the letters, H. W. S., which if not as complicated as such things are sometimes presented, will yet, we trust, be found useful. We could tell the painter how to shade the different letters, but since this is matter of taste with the artist, we shall in this instance leave it with him.

Trimming Room.

STOCK FOR TRIMMERS.

In our day, success in trade depends very much upon system; so much is this the case, that few, except such as have a large capital and some enterprise, are able to make and lay up any money in the carriage-making business. The man, who, for instance, is obliged to run to the store for just enough cloth to trim a single buggy, suffers from waste, especially in cutting out head linings, whereas, should he have several to finish, he can so contrive as to work up nearly, or quite all the scraps, which will be a considerable saving where material is costly. Again, some portions of the linings are so much alike in all buggies, victorias, etc., that the same workman may be kept on one kind of work nearly all the while, and since practice not only makes perfect, but likewise increases expedition in doing the work, somebody saves in labor over the small manufacturers—either the employer who hires his workmen by the day, or the employee who works by the piece. This is one of the secrets of success in large shops, in turning out better and nicer work than is done in smaller ones. The following table *of quantities* in cloth may be useful to the small manufacturers, for whose convenience they are published:

For lining a buggy body, 1½ yards; head lining, 4½ yards. When there is a back to trim, from a ¼ to ½ yard more will be required in the body.

For a four-seat phaeton, in the body, 3¼ yards; in the top, 4½ or 4¾ yards, proportioned to size. For a six-seat phaeton, in body, 4¾ yards; in top, 4½ to 4¾ yards.

For a six-seat rockaway, with shifting front, from 13 to 14 yards.

For a four-seat coupé rockaway, 11 yards. Coupé (circular front), 8 yards.

For a Brett, 10 yards.

For a coach, 12 yards.

For a full Clarence, 13 yards.

For a landaulet, 10½ yards coteline.

A reference to our prices current shows the price of cloth at present, to be: For body linings, from $3.50 @ $5; head lining, from $2.50 @ $3; cotelines, from $4 @ $8. Some persons buy German cloths because they are cheap. These shrink so much that they draw a top out of shape when they get wet and dry again; and if

sponged before they are used—this should always be done—they shrink so much that they are then no cheaper than the English, and much more liable to fade, seldom being "fast colors." The good qualities of the cloth used in trimming go far in recommending a vehicle to the customers, and is a matter too often overlooked by some carriage-builders now-a-days.

Editor's Work-bench.

CARRIAGE-MAKING ELEVATED.

For many years speculative minds have been occupied with plans for the more speedy transmission of passengers and merchandise, than has yet been accomplished, either by horse, wind or steam power on terra firma. If these speculators have thus far failed in reaching the acme of their ambition, still there is very little doubt but that their labors, in some indirect way, has contributed much to the expedition of travel, as enjoyed by the civilized nations of the world in this nineteenth century of universal progress. The aerial highways, on which castles have been frequently erected, only to be *blown away*, and which appears very pretty in the brain of the visionary, may yet be laid out in maps of the coming age, by the coming man, between earth and the starry world. Although our faith is weak in this expectation, still there are in existence to-day many improvements considered equally visionary once as these aerial highways with their flying vehicles are now. Who, one hundred years ago, would have for a moment entertained the belief that news would be every day transmitted from Europe to this continent in a few hours, and appear every morning in print at the breakfast table, in connection with that transpiring at our own doors? And so of many other things which we need not recapitulate here, since they have become patent to the minds of the present generation. We have become quite accustomed to receive things hitherto counted visionary as living realities, and, therefore, shall not be greatly surprised should our carriages, on some favorable afternoon, be seen in mid-air on their way to and from Boston to San Francisco, and possibly to Europe. When the time arrives the Alabama question will soon be settled, for we need only fit out a number of aerial war-chariots, man them with indignant Yankees and Irishmen, to make Johnny Bull tremble in the "fast-anchored isle," and hold it by possession until he pays us the last farthing. Having done this the Irishmen might be left *on the premises*, to settle their "old scores" with this same "old English gentleman." But this is a matter to be settled by our successors, and we therefore turn to our present experiments.

Just now our Pacific friends are elated with the success attending an aerial ship, which, in an experiment made with it, is said to have given complete satisfaction to the engineers present. This has led to the formation of an Aërial Navigation Company, the chief object of which is for the purpose of raising funds for the purpose of assisting the projector in constructing a full-sized air ship. It is expected that it will be completed in about two months, and then the Pacific Railroad Company will find a competitor which will speedily regulate its charges to a sliding scale, the tendency of which is downward. The aerial ship is to be named the Avitor, and be propelled by an engine of five-horse power, and elevated and supported in the air partly by gas and partly by planes on each side, at the center, extending some twenty feet from the ship, on each side. The planes are constructed in sections, and supplied with a rudder for elevating or depressing the car at pleasure, as required. This arrangement we are told will stop the sport old Aerial has hitherto made with former inventions of this kind, and secure certain success in this instance. We, ourselves, remember some years ago to have witnessed an experiment in the old Broadway Tabernacle which *promised* a good deal, *and exploded in gas*, just as the one under consideration undoubtedly will. The component portions of this Avitor are too *largely* gas to practical minds to ever prove successful. But we shall see what it is made of very soon. Meanwhile we hope our carriage-making friends will keep quiet—their occupation is not yet gone.

MALADMINISTRATION OF THE PATENT LAWS.

Recent intelligence from Europe informs us that the repeal of the Patent Laws are seriously agitated in England. This has stirred up a clamor among the scientific journals on both sides of the Atlantic, as they see that should such take place, their chief occupation would be ruined, the most of them largely obtaining their support from securing patents for such claims as may be presented by *pseudo* inventors, many of them possessing no originality whatever. This fact is so very notorious, among carriage-makers especially, that they have come to look upon nearly everything in the patent line as mere humbugs, and not worthy of notice. The Patent Office, as conducted in this country, is undoubtedly an institution for legalized wrong, and ought to be radically overhauled. Instead of repealing the laws which are only designed to secure the proper interests of the ingenious inventor in what is richly his own, let them be thoroughly reformed, and more care taken that *thieves* are deprived of the privilege of defrauding the public under the shadow of what is now denominated law. Were they administered with the care which ought to characterize them, full one-half of those on the weekly "Official Lists" would never appear, and only such as were palpably *original*, and of some value, would receive the sanction of law from Wash-

ington. As now managed, the most visionary claims are allowed, and no person who applies is disappointed in his hopes. Should any person wish to be considered *a genius* now-a-days, he need only send in a model and file a claim, and he finds himself indorsed by the examiner at once! No wonder, then, that Patent Offices and the attaches have become a bye-word and a scorn in the land. Let our examiners take more time in their examinations, and do their own thinking, trusting less to the representations of patent lawyers, and the pretensions of knaves. If this were done, and none but really *new* inventions were patented, no one would call for a repeal.

How much the carriage-building community has been wronged by the action of the authorities at the seat of Government has been amply illustrated in our pages on several occasions. Two prominent examples present themselves to the minds of our readers, the chief of which has been the notorious "Perch-coupling" case, now fortunately "played out" by limitation, and the "Clip-king-bolt" speculation, kept alive through the *gullability* of the craft. The first was evidently the offspring of political influence, and the last of legal perseverance and audacity. Neither of these ever had anything stronger than the *color of law* to protect them, and have only succeeded, because fools—some of them—are yet living. The first has been several times before the courts and defeated; the last never was carried thus far, because its parents knew full well—being cunning—that were they to sue for infringements, they would destroy the egg from which their chickens are hatched. They manage, however, by threats and brow-beating, to pluck now and then a fat goose from the *oleaginous matter* of which they *grease* the wheels of their disgusting existence. How much longer will this be tolerated?

VARNISHES, WOOD-FILLING, &c.

In our advertising pages the reader will find some very interesting and instructive remarks, emanating from the very enterprising and reliable house of Valentine & Co., at "the Hub," on the subject of varnishes and other matters interesting to all who are obliged to use paints. It will not be expected of us that we go into details here, the subject having been amply ventilated in the advertisement, which all readers are invited to dissect for themselves. But we may add that we have been a long time acquainted with the members of the firm personally, and know that they have never stopped at expense in their efforts to produce the best articles in their line, which improved scientific appliances secure. We can vouch, too, for their candor and honesty. They never intentionally misrepresent an article as good, without having good reasons for believing it such; and should the article sent unfortunately not satisfy—which we think seldom happens—we have ever found them ready to exchange it at their own expense. In a word—if you deal with them, you run no risk of being Jewed, and have the assurance that you are dealing with men with whom it is a real pleasure to transact business, aside from the advantages secured thereby.

TRADE STRIKES.

All workmen are at liberty to work or not, as they best think fit, and can also arrange the conditions on which the work is to be conducted. Liberty is a fruit of the present era, and ought not to be curtailed or limited in any manner whatever. The unions of certain branches of trade, however, for the purpose of organizing so-called strikes, whereby the operations in that branch are totally stopped, either for the purpose of exacting higher rates of wages or other advantages, is an abuse of freedom. Such acts merely tend to excite evil passions, and seal the doom of many families, who, but for such license, would have continued on the road to prosperity. No single branch of trade, at the present epoch, can be said to be a monopoly, for the manufacturers are not only obliged to enter into competition with their own countrymen, but also to foreign manufacturers. When a strike occurs, the manufacturer has only three means of escape, viz.: To accede to the increased demands of his workmen, and thereby diminish his legitimate profits; to seek fresh hands from other parts; or, to abandon the branch of trade, in the machinery and buildings necessary to which, he has perhaps invested the bulk of his fortune and credit. In either case, the workmen are likely to be the losers, because, even if their demands are acceded to, the extra charge thus put upon the produce, will, in all probabilities cause the trade to diminish and ultimately stop. The successive strikes in various branches of trade throughout Great Britain during the last few years, have furnished ample proof of the evil results of such acts, and should serve as serious warnings to all tradesmen. The financial results of strikes to all who participate in them are self evident and require no comment, but the moral results are disastrous in every respect. Many men, who were formerly known as steady, industrious workmen, become accustomed to pass days and even weeks in idling and in the attendance of social meetings, where they are brought into immediate contact with parties who make it a profession to work up the laboring man's worst feelings. Moreover, men acquire the habit of depending upon others for the scanty support meted out to themselves and their families pending the duration of the difficulty. Financial difficulties are to be overcome, but when a man acquires the pernicious habit of depending upon others, instead of working for his own support, the result is incalculable, and many families of

once respectable tradesmen can safely attribute their poverty of to-day to the misplaced readiness evinced in supporting a strike. Let every man be free, especially in the question of labor, but let wisdom guide his actions.

AN IMPORTANT SUBJECT.

Our readers will no doubt have noticed the articles we are now publishing in this Magazine, under the caption of a "Treatise on the Wood-work of Carriages," which we have had translated expressly for us at considerable expense from the French, by a competent scholar, attached to the editorial staff of the *New York Herald*. The letter-press will be copiously illustrated by geometrical diagrams, and continued through several monthly parts until the whole is complete. Our next article will be accompanied with no less than twenty-four diagrams. Need we say to the reader that this will be—when finished—the *only* genuine French Rule ever published in the English language? This translation will include all the very latest improvements in the rule made by the French scientists, and should be studied by every wood-workman among us. To secure it in full, please send in your subscriptions for the eleventh volume of this Magazine, which we can still furnish from the commencement. Where practical, remit in postal order, as being the safest way.

SPECIAL NOTICE TO THE TRADE.

Our friend Henry Pretzschner, of Wilmington, Delaware, having leased his large Carriage Manufactory, by the 25th of September, 1869, will sell his extensive stock of finished and unfinished carriages, also materials and tools, at public sale, commencing on Wednesday, September 22d, 1869; the sale continuing until all is sold. This sale will be positive, without regard to weather or under-bidding. The stock includes everything appertaining to a first-class carriage factory, valued at $15,000, and is well worth the attention of the trade. The sale will begin with about fifty finished carriages of every description, at 10 o'clock on Wednesday, Sept. 22.

SEAT SUPPORTS.

By referring to our advertising columns, it will be seen that the Messrs. Linton, of New Bedford, have disposed of their right and interest in the "Ornamental Malleable Iron Supports," which have been pronounced a success, to Mr. Isaac R. Potter, of the same place. Four qualifications recommend them to the trade—ornamentation, durability, convenience and economy. The new circular of Mr. Potter, presents us with numerous certificates from members of the craft, recommending the Risers in the highest terms. They may be ordered through any dealer in carriage-materials.

OUR CHARTS.

We have in stock three Charts, numbered respectively 5, 6 and 7; the three containing over eighty designs of approved styles. They are all of a uniform size, and may be had by mail or otherwise for $2.25 the set. Price, single, $1. No carriage-shop should be without them, as they are found a valuable auxilliary in obtaining custom. We could—were it necessary—bring numerous testimonials to this fact. When we put in type the business card, the additional expense is $2. For large quantities, we make a great reduction from the prices named above. Please send along your orders and receive copies by return of mail.

TRADE NEWS OF THE MONTH PAST.

One of the local Bricklayer's Unions (No. 4.) in this city, limits the number of apprentices any one man shall take to two, and forbids him taking "scabs" at all. Some men have been so determined that, in the face of the *by-laws*, they have taken four apprentices, and then again, others have set fifteen or sixteen boys to work without any agreement. To cap all, they employ non-society men, "and the Union men consider their interests endangered." *This is awful* in a free country!....A clothing manufacturer by the name of Sturtz, in Brooklyn, being himself a member of the local Union, was very zealous in having "watchers" set for his neighbors, but when such were placed on his store, subsequently, he had them arrested. "Consistency, thou art a jewel," and *the consistency* of some Unionists is astonishing.....The Laboring Men's Convention in Virginia City, Nevada, tells the public that the importation of Asiatics and their employment in the mines or other fields of labor must stop, or it will bring on an "irrepressible conflict," likely to end in bloodshed and ruin. When shall we have peace?.... The Tailors who have been set to watch the shops refusing to comply with their exactions, having been threatened with arrest, have substituted their wives for the service instead. These, enclosed in petticoats, are not so readily distinguished as enemies. In view of these facts, we submit the following: If it takes nine tailors to make *a man*, how many *women* will it take to make a tailor?....One year ago, when the Bricklayers struck for eight hours, an agreement was settled with the bosses that each might take two apprentices. The bosses afterwards complained of the hardship of such restriction, and the workmen having re-considered the matter afterwards, *allowed* an increase in the number. This "liberty" has been abused, the bosses having "arbitrarily"—this is the word used by the workmen—increased the number since. In consequence of *this infringement of their rights*, Union No. 2 has ordered a strike until the "tyrant bosses" reform.....

Miss Susan B. Anthony, of this city, having been elected President of the Working Women's Union, and proposed as the delegate to the Philadelphia Convention, in anticipation of such a contingency, the Engineers' Protective Society have instructed their delegate to vote against her admission. These engineers seem to have very little regard for women's rights.....Last year, the working men mixed up politics with unionism, and selected men of their own choice to annul the "Conspiracy Laws" of the State of New York, which the candidates, before the election, promised to do, but afterwards said little about. In fact—workmen say—the last legislature "promised them everything, and gave them nothing." This year, the workmen will try once more—likely with the same result.

REVIEW OF THE MARKETS.

WE hear of dull times among carriage-makers from nearly all points of the compass, caused, it is said, by the scarcity of money and the general declension in almost every department of business. In consequence of this state of affairs, manufacturers have been compelled to discharge large numbers of their hands, fearing lest their stock of carriages should accumulate, with their liabilities, beyond the dictates of prudence and the limits of control. Very little work is being made to order, and the repositories have not been, as a general rule, emptied with the encouragement of former times. Sales from the repositories, in a few instances, in June were quite flattering, but are now quite dull, almost everybody having gone out of town to the watering places or elsewhere, as is common at this season of the year. In former days—before our civil war—orders from the South favored the carriage-maker very much in his fall business. This has been cut off ever since, and it is not likely—in view of the poverty of the people in that section of the country—to revive again very soon. We hear of a few customers from the west and south-west, making inquiries among the repositories on Broadway, the general complaint being that prices charged for good work rule too high to prove profitable to them, and that cheap work will not sell at all. In Philadelphia, the chief relief from the dullness experienced in New York, has been in orders from the Pacific coast for buggies and coaches. Among our Boston friends, trade has been somewhat better, more carriages have been sold in July than in the corresponding month last year. This has given encouragement for hope that the fall months will prove more active than usual. The velocipede manufacture has entirely dropped off, and machines which last winter brought fabulous prices, can now be had for a mere song. Whether this is due to waning popularity, or the sultry weather, we are unable to state decidedly. Advertisers of velocipede wheels, have now all withdrawn their favors, under the conviction that since there is no demand for them, the machines must have about "played out." The coming winter will no doubt settle the question definitely.

EDITORIAL CHIPS AND SHAVINGS.

THE WORLD ON WHEELS.—Under this title we have in advanced preparation a general history of carriages and customs of the various peoples with whom they have been favorites, from the days of the Pharoahs until now. It will probably make a large octavo volume of some five hundred pages, with about four hundred illustrations from the relics of Antiquity, and the work-shops of modern times, and it will be found alike interesting to the general reader and the carriage-builder. Our plans are not sufficiently matured to fix the price—which we intend shall not exceed five dollars—but we are ready to receive the names of subscribers to it that we may have some data from which to fix the number of copies printed. We only want the names now, and shall call for no money until the volumes are delivered. Please send in your orders.

ECCENTRICITIES IN VELOCIPEDES.—Since the great impulse given to the manufacture of velocipedes by their universal adoption throughout Europe, innumerable improvements have been patented. We hear of two startling novelties from France and Geneva. In France, M. Bluin has adapted to his velocipede a pair of sails, and in a fair wind skims along like a nautilus, a rate exceeding the greatest speed hitherto attained with the ordinary vehicle propelled by the feet; while at Geneva, an ingenious musical box-maker has actually constructed a "*velocipede à musique.*"

EVENERS.—Our cotemporaries, *The American Agriculturist* and *The Rural New Yorker*, have each had several articles lately on eveners and whiffletrees in which we find valuable suggestions. From the *Agriculturist* for August we take the following extract: "Since three horse eveners are in such demand—says a correspondent—I have concluded to send a description of one that I am using, not having seen it described in the *Agriculturist*. I take a bar of iron ($1\frac{1}{2}$x$\frac{1}{2}$) about 8 inches long, and have a link welded in one end, and a long hook, say 8 inches long in the other, so as to make the distance between the centers of the holes 6 inches. Two inches from the link I put another. When the bar is attached to the plow it stands upright, and is attached to the plow by the link nearest the middle, short end down. To the other link I fasten an evener $4\frac{1}{2}$ feet long by the center, for two horses. The single horse is hitched to the upper end of the bar. The advantages claimed for this plan are, that the horses are nearer the plow, and the middle horse being hitched to a single-tree, six inches above the others, enables me to use a shorter two-horse evener than otherwise."

CHIPS FROM THE "HUB."—A new carriage factory is building at Ansonia, Conn., which will soon be occupied by Messrs. Styles & McKee....F. P. Wallis is building a large carriage shop at Clinton Junction, Wis.....Messrs. Henderson Bros., of Cambridge, intend soon to build a large brick manufactory in place of their present one.... A new carriage factory has been erected at Calais, Me., by Wm. J. Granger and T. E. DeWolf. It is said to be large and commodious....The new carriage factory of the Putnam Manufacturing Company at Bennington, Vt., is nearly finished. It is 100 by 50 feet, and two stories

high.... Theodore Salorgne, of St. Louis, began the business of carriage building in 1838. The factory, which he now occupies, was built in 1857. It is four stories high, and has an area of two acres. His product includes coaches, landaus, buggies, etc., and with his present force of sixty-five hands, he can turn out a carriage every two days.... Messrs. Carr & Allen, of Amesbury Mills, are doing a thriving business in their new factory, which was built last year. They give special attention to light work, and turn out from two hundred to three hundred carriages per year, most of which are taken out by the New York and Western trade.... F. H. Randlett, of Dover, N. H., has increased his number of employees to twenty-five. His specialty is light work, and he turns out from fifty to seventy-five carriages per year, and an equal number of sleighs.... In Amesbury, Mass., it is estimated that over four thousand vehicles will be manufactured during the current year....The carriage factory of Robinson & Brother, in Wilmington, Del., was destroyed by fire a few weeks ago, and they are now occupying temporary quarters until a new factory can be built or bought. They employ 40 to 50 hands....Francis Chapman, of Cambridge, Mass., whose carriage factory was recently destroyed by fire, is now rebuilding it, and will soon have increased facilities for manufacturing.

PROF. BULLFROG'S NEW MUSICAL TURN-OUT.

When to Cut Timber.—A writer in the *Rural World* says:—"I have worked in timber, and experimented as to the best time to cut it to make it last well; and by actual observation have come to the conclusion that from the 15th of August to the 15th of September is the best time in the year. Timber cut then worms will not enter. The bark will remain on for about twelve months, and then, when moved, fall off of itself, without any trouble. But my brother farmers will say the season then is too hot to labor in the timber. Admitted; but one tree cut then is worth three cut in the winter; if a person can only cut his timber down at this time, he is not necessitated to then work it up, but can let it lie till the winter following, and it will do as well as being worked at the time when cut—and at his leisure, if it is two years after, he can work it up.

"Hickory timber cut at this time makes good rails, that will last nearly as well as oak. But unfortunately for our farmers, they are under the necessity (*or do it*) of cutting all or most of their timber in the winter months; and timber will decay cut in those months, in this climate, sooner than in any other month in the year."

Central Park Carriage Drive.—The carriage drive around the Central Park is about eight and a half miles long, and from fifteen to sixteen hundred carriages of all kinds enter it daily—so a policeman informs us who has made it his business to keep count.

Old Carriages.—There are two old coaches in this country, which have now become great curiosities. One of these is in New York city, and is an old relic in the Beekman family; the other we last saw on storage in Dunlap's carriage shop, in Philadelphia. This last is reported to have once belonged to General George Washington. Both were made about the same time, and are modeled after designs found in William Felton's *Treatise on Carriages and Harness*, published in London, at the close of the past century.

Straightening Timber.—A cotemporary recommends the wetting and pressing out of timber, to save it after it becomes warped in the stick. This would do, could it be made to keep straight afterwards. The best way is to prevent its warping by properly "sticking it up" while the sap is in the timber, and letting it remain in that condition until it seasons. It is a fact well known to practical men, that the toughest and best timber is the most apt to warp. A soft *brash* stick will never warp, but break very easily.

To Make a Balky Horse Draw.—In India, where a horse can and will not draw, instead of whipping or burning him, as is frequently the practice in more civilized countries, they quietly get a rope, and attaching it to one of the fore feet, one or two men take hold of it, and advancing a few paces ahead of the horse, pull their best. No matter how stubborn the animal may be, a few doses of such treatment effect a perfect cure.

THE AMOUNT expended on the Government buildings in Washington, from the time the seat of government was located there to June 30, 1868, for public works of every description, including buildings and works of art, is $37,390,853.08. The grounds owned by the Government in the District of Columbia amount to 578 acres. Chicago gives notice that she stands ready to issue bonds to the extent of $40,000,000, to construct Government buildings there, in case St. Louis hesitates to come to the scratch.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH MAKER'S MAGAZINE.

NEW YORK, AUG. 20, 1869.

Apron hooks and rings, per gross, $1.25 *a* $1.75
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 8c.
Axles, plain taper, 1 in. and under, $5.50; 1⅛, $6.50; 1¼, $7.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $7.50; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half pat., 1 in. $10; 1⅛, $11; 1¼, $13; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅝ in., $11.00; ¾, $11; ⅞, $12.00; long drafts, $2.50 extra.

☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.

Bands, plated rim, 3 in., $1.75; 3 in., $2, larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Bolts, Philadelphia, list. 30 off.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 18 *a* 23c.
Burlap, per yard, 14 *a* 16c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, $1.75 *a* $2; velvet, $2.75 *a* $4; oil-cloth, 45 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $2.50 *a* $3.00, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $15 *a* $22.
Dashes, buggy, $1.75.
Door-handles, stiff. $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.75 *a* $2.
Enameled cloth, muslin, 5-4, 40c.; 6-4, 75c.
Enameled Drills, 48 in., 55c.; 5-4, 50c.
Do. Ducks, 50 in., 75c.; 54, 70c.; 64, 80c.

☞ No quotations for other enameled goods.

Felloe plates, wrought, per lb., all sizes, 20c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.50 *a* $2.00.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.

☞ For a buggy-top two pieces are required, and sometimes three.

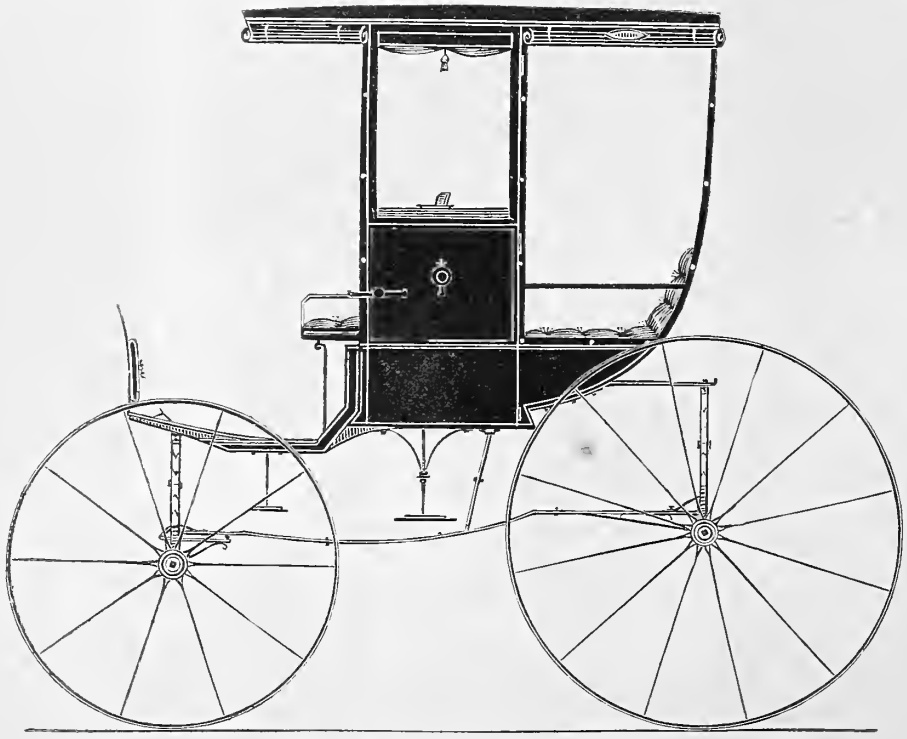
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $1.75.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach, $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 26c.; railing do. 24c.; soft dash, No. 1, 15c.; do., No. 2, 13c.; hard dash, 15c.; split do., 15c.; No. 1, top, 26c.; enameled top, No. 1, 26c., do., No. 2, 24c.; enameled trimming, 24c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates. (See Advertisement.)
Oils, boiled, per gal., $1.25.
Paints. White lead, extra, $13.00, pure, $14.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $6 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Sand paper, per ream, under Nos. 2½ and under, $1.50.
Screws, gimlet, manufacturer's 30 per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 16c.; bright, 18c.; English (tempered), 21c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.

☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.

Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.

☞ For extra hickory the charges are 10c. *a* 12½c. each.

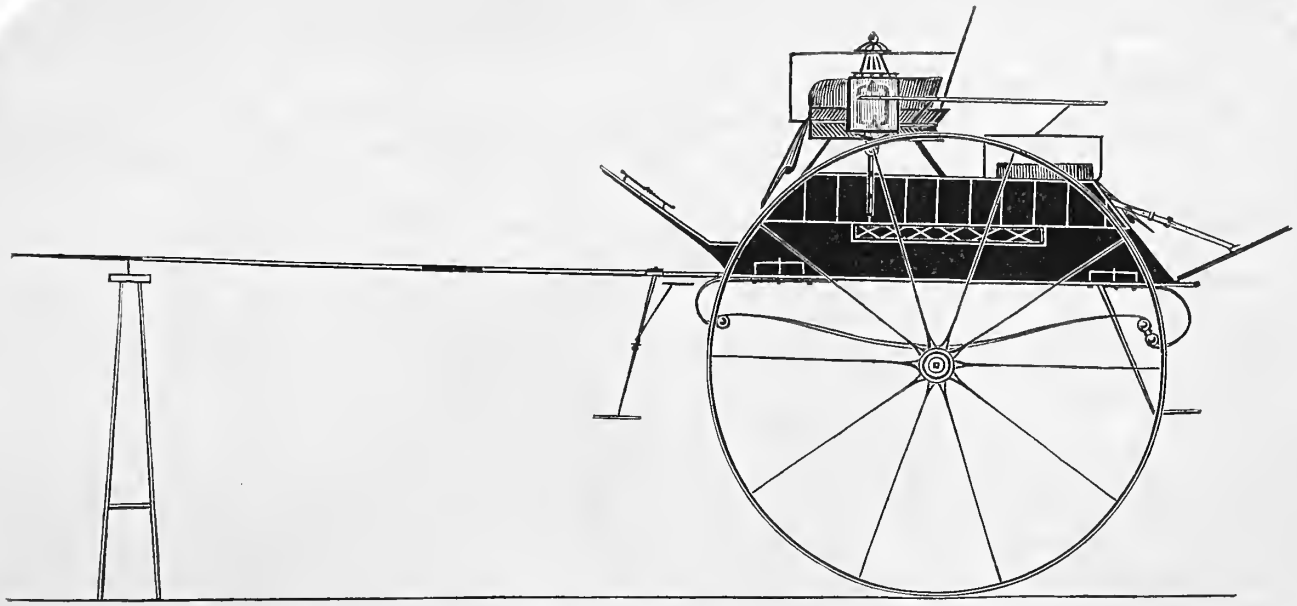
Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 15c.; 1-4 x 1, 15c.; 3-16 x 1 1-8, 16c.; 3-16 x 1, 16c.; 3-16 x 7-8, 17c.; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35, gold.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close-plated nuts and rivets, 75 *a* 80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2 Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 60c
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.00; nonpareil, $5.25.
Do. English, $6.25 to $7.50 in gold, or equivalent in currency.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Whiffle trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.



DROP-FRONT ROCKAWAY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

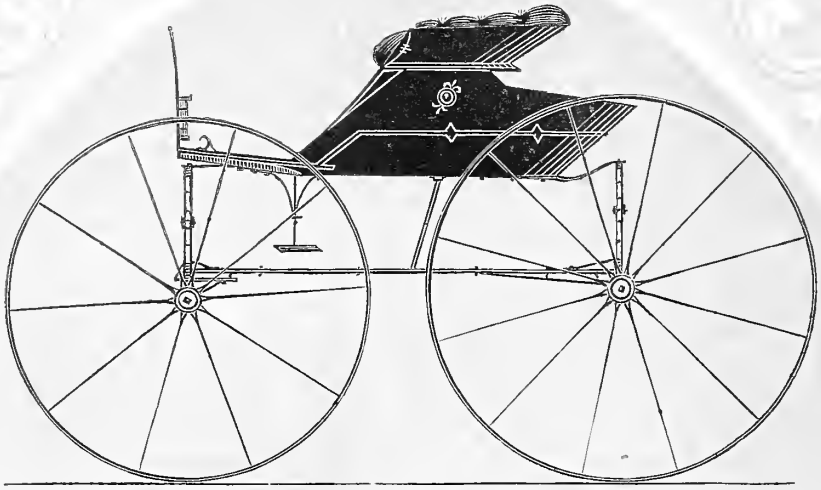
Explained on page 73.



EXCELSIOR DOG-CART.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

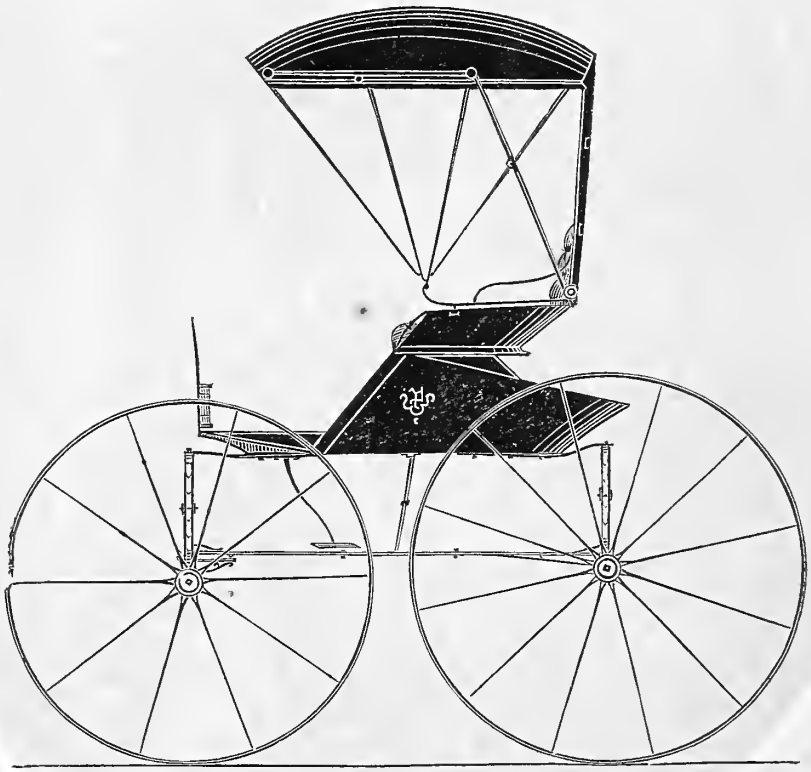
Explained on page 73.



TROTTING COAL-BOX BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

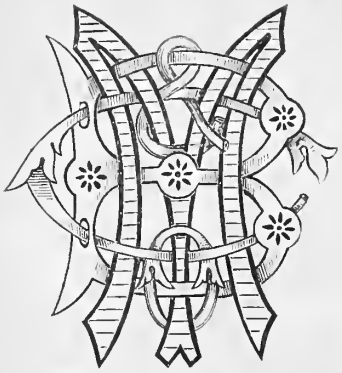
Explained on page 73.



COAL-BOX, WITH TOP.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 74.



ORIGINAL MONOGRAM.—M. B. & CO.

Explained on page 75.

CANOE COAL-BOX, WITH TOP.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine

Explained on page 74.

THE NEW YORK
MECHANIC'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XI. NEW YORK, OCTOBER, 1869. No. 5.

Mechanical Literature.

THE ADVENTURES OF THREE JOURS.

BY H. S. WILLIAMS.

CHAPTER V.

THE good steamer St. Nicholas was advertised to leave for Montgomery and all intermediate landings on Saturday, the 5th day of May, and our friends decided, as they had finished off all of Mr. Hardy's work, to take passage thereon. Perhaps a hint thrown out by Miss Linden a few evenings before had something to do with that decision, on the part of Gloner, at least; but of that hereafter.

"Business of all kinds will be dull now until fall trade begins, which will be about the first of September, when the new cotton crop commences coming in," said Mr. Hardy, when he settled up with them. "If you come back this way at that time—and I think you will, for I don't see how a person of intelligence, who has lived in Mobile once, can go away for good—and if you do return, give me a call, and if you want for anything to do, I'll see if I can't accommodate you. I am well pleased with your work, and the same jobs, if sent to one of the repairing shops here, would have cost me twenty-five per cent. more, and not been half done at that. When you come round to bid us good-by, I'll give you a letter to a Montgomery friend of mine—it might do you some good—at all events it will do no harm."

On the 1st day of May our friends attended a May-day festival, when, in the expressive language of Loring, "they had a high old time." And then the intervening time was passed in calling on their lady friends, and in wandering about the city, which now, off of the business streets and outside of the quarter devoted to cotton warehouses, was one dense wilderness of roses. And then one day was passed across the bay, on the eastern shore, where they found the most delightful bathing, the finest fishing and hunting, as well as the best tables they had ever seen. But, alas! all pleasures have an end, and the 5th of May arrived.

Mr. Hardy was called on, the letter of introduction was received, and then they went aboard the St. Nicholas, and, lighting their cigars, they took seats on the deck where they could have a free view of the busy scene before them. In the year 1857, nearly all the planters in the interior of Alabama, and a good part of Mississippi, too, obtained their supplies from Mobile, consequently the scene was a busy one. Great hogsheads of bacon, barrels of mess pork and flour, tierces of rice, and all kinds of groceries were hauled on the wharf by the dray load, and then rolled on the steamer by a score or two of stalwart deck hands. Then, as the hour for departure drew near, coach after coach drove up and deposited loads of passengers. One in particular attracted Loring's attention, and when the occupants alighted, he slapped his companion, and exclaimed, "Ah, ha! my boy, Miss Linden and her father; I see now why you were so anxious to come on this boat. You knew Miss Lucy was to be one of the passengers."

A smile played on the face of Gloner as he replied, "I certainly did, and of course when one can have pleasant company, one is unwise not to profit by it."

A nod and sweet smile of recognition was bestowed on both as she passed by and disappeared in the lady's cabin, after which they saw her no more until next day; then they met and passed several hours together, viewing the ever-varying scenery along the romantic banks of the Alabama, and when night came, through her our friends became acquainted with nearly all the lady passengers on board.

Now, we know that the professed novel reader will censure us for our lack of skill in depicting and introducing startling adventures, for we well know that we ought to have the steamer blown up, or get snagged, just for the express purpose of having Gloner rescue Miss Linden and her sire from a "watery grave," while Loring swims ashore with all the rest of the lady passengers, but we plead guilty to a most deplorable aversion to "hairbreath escapes," as well as to a sacred regard for truth, and as the wreck of the St. Nicholas is to this day visible in the Bigbee River, where she sunk in 1867, surely the lovers of the marvelous will see the utter impossibility of causing her to "go up" ten years prior on the Alabama. Therefore, we only have to record the fact, that our friends, after a most agreeable and pleasant trip of three days and some odd hours, landed safely at Montgomery, and put up at the Exchange Hotel.

The next morning, as Mr. Linden's carriage had ar-

rived, he and his daughter left for their plantation some ten miles distant.

"If you remain in the city, I should be pleased to have you both call out and see us," said Mr. Linden, as he shook them warmly by the hand at parting; "I will try and make your visit agreeable and pleasant, in which I know I will be assisted by Lucy."

"Thank you for your kindness," said Gloner, "and if we do remain here, we shall certainly profit by it, and more particularly," he added in an under tone, "if it would be agreeable to Miss Linden."

A smile from her answered him most fully.

Now for work, said Gloner, as the carriage disappeared at the next corner; "we must make hay while the sun shines, so let us look up the carriage factories here, and see what can be done. Let me see, where is Hardy's letter. Ah, yes, here it is! By Jove! 'Lamer & Fountain, proprietors of Exchange Stables and Montgomery Carriage Factory.' So they build carriages and wear them out too, hey? Come on, and let's see what they can do for us."

They soon found the Exchange Stables, and inquiring for Mr. Lamer, they found that worthy seated in the office with his boots elevated on a table, while he smoked a cigar and read the morning's paper.

"You will find Fountain in the shop," he said, as he glanced over the letter; "take this to him. Shop fronts the next street, and you will reach it by passing through the stable," and he resumed his cigar and paper.

On reaching the shop, all hands apparently were gathered at the front door, where quite a crowd of persons had collected. A single glance told our friends that there had been a runaway, and the crowd were examining the wreck and listening to the driver, who was a little hurt and a good deal scared, tell about "how de t'ing happened."

"A bad smash up," said a gentleman in his shirt sleeves, as he re-entered the shop; "a bad smash up—would not have had it happen for one hundred dollars—the only fine Clarence coach we've got, and no one that can repair it the same as it was."

"Is this Mr. Fountain?" asked Gloner, as he advanced towards him.

"Yes, sir; that's my name, sir."

"I have just arrived from Mobile, and have a letter from a friend of yours there, Mr. Hardy."

"Ah, indeed, from Hardy, eh? Well, what does he have to say?" and taking the letter, he read it eagerly. "Well, Hardy says here that one of you is a first rate body-maker, and the other a very fine painter. Are you the body-maker?"

"Yes, sir, and my friend here, Mr. Loring, is the painter."

"Well, I do not know but what you are lucky in arriving here just now," said Mr. Fountain; "go out and look at that coach, and tell me what you'll do the repairs on it for."

It did not take Gloner long to decide, for the carriage, as is generally the case with a runaway, looked a good deal more damaged than it really was. Two of the lower quarter panels were split, the glass door frames were both broken, one wheel injured, and all the carving on one side more or less defaced.

"Well," said Gloner, when he returned, "I will do all the wood-work for twenty-five dollars, and make it look as good as new."

"Well, but how about the carving? Did you notice that some of that was broken?"

"Yes, I noticed it all, and will carve it just the same as it was before the accident occurred."

"Well, if you can do that, I'll give you twenty-five dollars willingly. And can your friend there paint it so as to correspond with the balance?"

"Certainly," said Loring; "I can paint it for, let me see, say ten dollars, and not one in a hundred would ever know it had been damaged."

"Well, you can go right to work on it then, Mr. Gloner. And as for your friend here, I'll give him something to do in the paint shop until you are ready for him."

"Very well, sir. Have your smith take off the body and bring it before the bench I am to occupy, and after dinner we'll be on hand."

On leaving the shop they happened to pass the post-office, when Gloner proposed stopping, as a letter might be there from Margrave. And, sure enough, he did receive one, wherein that worthy stated that he had written to Mobile, and receiving no answer, had concluded to write one to Montgomery. It was dated the last of April, and further informed them that he expected to leave the place he was then stopping at, and try to get to a civilized county, when they might expect to hear from him again.

"Poor Margrave," said Gloner; "I fear he has not had as easy, nor as pleasant times as we have. And I presume he is about broke, too. Wish I knew where some money would reach him, for a ten dollar gold piece would be very acceptable just now, I warrant you. Well, I hope he'll write soon, at all events."

After selecting a pleasant-looking boarding-house in that most beautiful part of the town known as Capitol Hill, and moving their trunks thereto, they partook of a good dinner,—although rather late, as it was two o'clock when the bell rang,—and then proceeded to the shop and commenced operations. During the afternoon Gloner managed to get out all his stuff, and two more days of rather hard work saw the job finished.

"Very well, very well, indeed," said Mr. Fountain, as he looked at it most critically. "I don't see but what that's just as good a job as they could do up North, or anywhere else, for that matter. Now we'll have the smith-work done, and then Loring here can try his hand. In the meantime, I want a neat express wagon to carry baggage to the river, and you might as well make the body, I guess."

"Very well, sir; what's the size, and how do you want it made?" asked Gloner.

"Oh, as for that, just suit yourself," returned Mr. Fountain. "You know what I want it for, and you know how it ought to be made as well as I do, so just go ahead."

"Pretty rapid progress already," thought Gloner, as he proceeded with his job.

When Loring applied the last coat of varnish, and pronounced the coach done, the delight of Mr. Fountain knew no bounds, and he was not satisfied until he had his partner in the paint-shop looking at it.

"Isn't it a first rate job," he said. "Now, who would have thought such a thing possible. Why I couldn't tell

that it had been repaired myself, if I didn't know it. It looks just as good as it did before the run-away, and I don't know but what better. We must have all our carriages repaired and painted up now, while we've got the opportunity," which assertion convinced Loring that they both had a good summer's job.

Montgomery did not prove as social a place as Mobile, yet our friends managed to get along very well. They were fortunate in having a good boarding-house and a very pleasant room, where Gloner passed most of his leisure hours. At the shop they each had a little darkey to wait on them—to tote water, heat the glue, grind paint, wash off old carriage parts, take work to pieces, and, in fact, all the drudgery; for your jour in the South in those days would soon lose *caste*, and be considered nobody, if he stooped to such menial work. Then the money was always ready, and our friends were never questioned about their prices. "What is such a job worth?" Mr. Fountain would ask. "So much," would be the reply. "All right, sir," and the amount was put down without another word.

And so a month passed away right pleasantly, and quickly, too; and then the hot weather came on. But as work was not pushing, they consulted their own inclinations, and thus managed to put in the time rather easily.

About this time Gloner received a letter from Margrave, written at Columbus, Miss. "I have finally reached this place," he wrote, "a rather pleasant inland town, and have a job at a very good carriage factory, but only to trim two buggies. Had a terrible time in getting here. Walked all the way from Yazoo City—but I'll tell you all about that when we meet. If you get this, do write to me, and get a job for me near you, for I'm tired of this kind of living."

As Mr. Fountain said he could give him something to do, Gloner wrote to him the same day, and each one enclosed a ten dollar bill therein, with instructions to come on direct to Montgomery as soon as he had finished his buggies.

"Suppose we should go out and test the sincerity of Mr. Linden's invitation," said Loring one evening, as they were returning to their boarding-house. "The boss is in no particular hurry for our work, and I think a few days recreation out in the country would do us good."

"No doubt of it," returned Gloner; "and nothing would please me better, for I have a great desire to see how the planter lives, as well as to have a look at the country itself, and learn how they make cotton."

"Then let's speak to Mr. Fountain for a team, and we'll start, say next Saturday, and remain over Sunday, at all events, and as much longer as we may decide upon at that time. What say you?"

"Very good; I will speak to Mr. Fountain to-morrow about it."

The next day he did so, and Mr. Fountain declared that he would fit them out with the best the stable afforded. "You will have a fine time out there," he added. "Mr. Linden lives in style, and being one of the old-school Virginia gentlemen, he will leave nothing undone for your pleasure and comfort. And then his daughter, Miss Lucy, is one of the sweetest and most charming creatures you ever saw,—but then you know that already, as you are acquainted with her."

And so everything was arranged, and, with one at least, Saturday morning was looked forward to with a good deal of interest. A note was duly despatched announcing their contemplated visit, and then they could only await with patience for the auspicious morning to arrive.

(*To be continued.*)

TREATISE ON THE WOODWORK OF CARRIAGES.

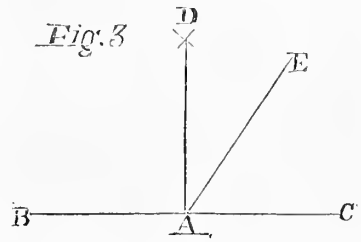
Continued from page 53.

The size of an angle does not depend upon the length of its sides, but upon the space between them.

There are three kinds of angles: the right angle, the acute angle, and the obtuse angle.

XII. When an upright, A D, meets another, B C, (fig. 3), in such a manner that they form two equal angles, B A D, C A D, these angles are right angles, and the upright, A D, is said to be perpendicular, or square to the line, B C.

Fig. 3



In order to raise a perpendicular on the line, B C, from the point, A, two equal distances are taken, A B, and A C, respectively, on each side; then, with a pair of compasses extended farther apart than A B or A C, two segments of circles are drawn from points B and C, the point of junction, D, determines one of the points of the perpendicular. By drawing a line between A and D the perpendicular is obtained. In the art of drawing, this operation is effected by means of a rule or a square.

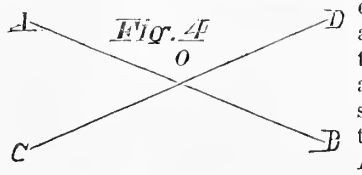
XIII. All angles, for instance E A C, being less than a right angle, are acute angles, and all angles, such as E A B, being larger than right angles are obtuse angles. The line, A E, in common with those two angles, is oblique to the line B C.

XIV. Two angles, C A E, E A D, are called complementary to each other when their united sums are equal to a right angle. Two angles, C A E, E A D, are supplementary to each other when their sums are equal to two right angles.

From the foregoing it will be seen that the sum of all the angles formed around one point, A, of a line, B C, and on the same side of the line, is equal to that of two right angles.

XV. When two straight lines, A B, C D (fig. 4), cross each other, at point O, in any manner whatever, they form four angles around that point, the sum of which is equal to that of four right angles. Angles such as A O C, D O B, opposite angles at the point of crossing of the two lines, are equal angles. Therefore, these two angles are supplementary either to the angle A O D or C O B. By the same fact it is proved that the angles A O D, C O B are equal.

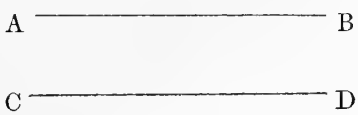
Fig. 4



XVI. Parallel Lines.—When two straight lines,

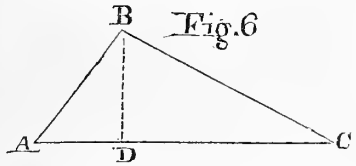
such as A B and C D (fig. 5), have the same direction, in such a manner that, if they are infinitely prolonged, they will not meet, they are named parallel lines. The property of such lines is, that they preserve an equal distance between each other over their entire length.

Fig. 5.



XVII. Triangles.—A triangle is the space between the lines that cross each other, respectively; here in this description we shall only consider those triangles formed by straight lines. There are two facts to be noticed in all triangles—the lines by which the surface is bounded, and which are designated the sides of the triangle, and the angle formed by the junction of those lines. Thus the lines A B, B C, C A, are the sides of the triangle, A B C (fig. 6); and each of the points A, B and C, are at one of the angles of the triangle.

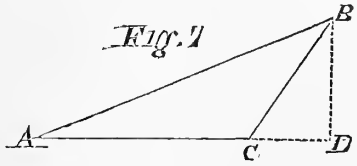
Fig. 6.



Where either side of the triangle is taken as the base, the opposite angle, as here the angle B, is called the top angle.

The height of a triangle is determined by a plumb line starting from the point B, and prolonged through the base line, as line B D, in fig. 7.

Fig. 7.



XVIII. When two sides, A B, A C, of a triangle, A B C (fig. 8), include a right angle, a, the triangle is styled a rectangular triangle. The two sides, A B, A C, are the sides of the right angle. The side, B C, opposite the right angle, is the hypothenuse.

Fig. 8.

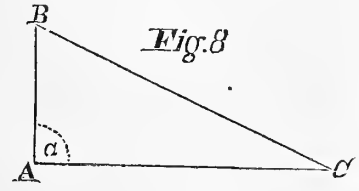
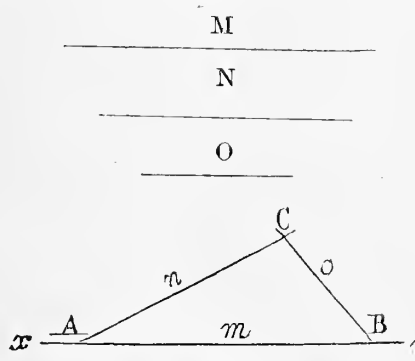


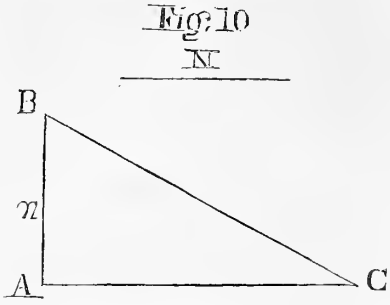
Fig. 9.



XIX. To construct a triangle from three given sides. Suppose M N O (fig. 9), are the three given sides. One of the sides is placed on a straight line x y, say m, the extremities of which are A B, then take each of the other sides respectively, between the compasses, and describe the arc of a circle from each of those points. From the point of junction, C, draw two lines respectively to points A and B, which will give lines A C and B C, which in their turn are respectively equal to n and o, and will produce the required triangle, A B C.

XX. To construct a rectangular triangle, the two sides of the right angle being given.

Fig. 10.

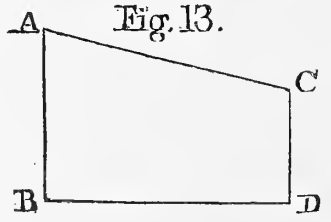


Suppose A C and B to be the two sides of the right angle (fig. 10), then, by means of a rule or a square, erect a perpendicular (A B) on the extremity of one of the sides, for instance, A C, on which place the side, n, from A to B. On joining the extremities, B and C, the required triangle, A B C, will be the result.

Fig. 11.

Fig. 12.

Fig. 13.

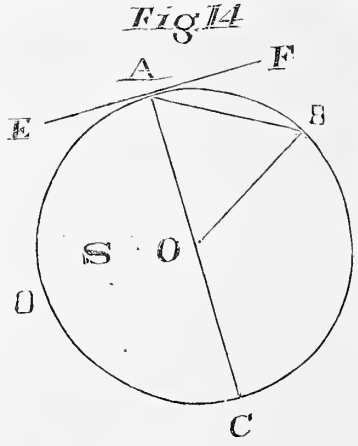


XXI. Quadrilaterals.—By quadrilaterals it is meant to indicate figures enclosed within four lines. Those that we shall employ are—the rectangular (fig. 11), having four right angles, the four sides of which are consequently equal and parallel.

The parallelogram (fig. 12), the opposite sides of which are equal and parallel, without having any right angles.

The rectangular trapezium (fig. 13), two sides of which, A B, C D, are parallel with the angles, B and D, right angles.

Fig. 14.



XXII. Circles.—The circle (fig. 14) is a plane surface, S, bounded by a curved line, A B C D, called the circumference, all the points of which are at an equal distance from the center point O.

The radius is a straight line that joins the center to the circumference, such as A O.

The chord is a straight line, A B, drawn within the circle, and communicating to two parts of the circumference.

The diameter is a chord, A C, passing through the center.

The segment of a circle is a portion of the circumference cut off by a chord, or included between two radii, such as A B.

A tangent is a straight line, such as E F, that touches at any point, A for instance, which is styled the point of contact.

The normal or perpendicular, is a straight line, A O, bearing on a point, A, of a curved line, and perpendicular to the tangent at that point. In general, a normal is a perpendicular to a curved line or to a curved surface; and in a circle the direction of that line passes through the center and becomes confused with the radii and the diameters.

THE RELATIONS BETWEEN LINES AND SURFACES IMAGINED IN SPACE.

XXIII. The elements that we have just had under our consideration, are supposed to be on the same plane. When lines and surfaces, and surfaces with each other respectively, are not in one and the same plane, they are said to be in space. It is in this light that we shall consider them in the following.

Fig. 15.

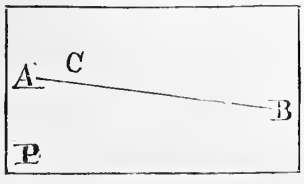
In order to figure a plane it is generally represented by a quadrilateral, A B C D (fig. 15), traced on its surface, but as the plane is an unlimited surface, it must always be considered to be extended beyond the lines that appear to form its boundaries.

A plane is generally designated by a letter; excepting in the case when the lines by which it is determined are mixed with others. Then a sufficient number of letters are employed in order to distinctly determine it.

XXIV. *Relative positions of a straight line in respect to a plane.*—A straight line can occupy four different positions in respect to a plane, which are:

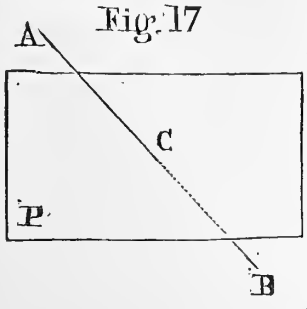
1st. It can be entirely within the plane.
2d. It can be perpendicular to the plane.
3d. It can be oblique to th ane.
4th. It can be parallel to the plane.

Fig. 16.



When a straight line, A B, has two points, A and C, within a plane, P (fig. 16), it is entirely within: this is a consequence of the definition of the plane (art. 9).

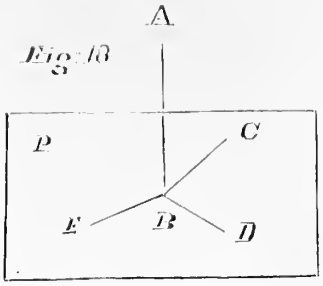
Fig. 17.



XXV. When a straight line, A B, traverses a plane P (fig. 17), the intersection of the plane and of the straight line takes place in a single point, C. The line thus becomes divided into two parts by the plane, one of which, A C, is above and visible, and is represented by a full line; the other part, C B, is below, and wholly or partially hidden by the plane; the hidden part is represented by the punctured line.

XXVI. A straight line, A B, is perpendicular to a plane, P (fig. 18), when it forms right angles with all the lines, B C, B D, B E, bearing on the base of the plane. The line, A B, would be oblique to the plane if it did not fulfill this condition.

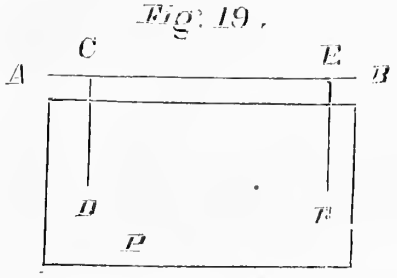
Fig. 18.



Reciprocally, all lines, B C, B D, B E, brought from a point, B, of a line, A B, perpendicular to that line, determine a plane, P, perpendicular to the line A B.

Two perpendiculars, B C, B D, not straight lines, bearing on the point B of the line A B, are sufficient to determine a plane perpendicular to that line.

Fig. 19.

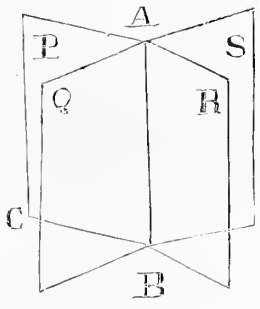


XXVII. A line, A B, and a plane, P (fig. 19), are parallel when they cannot possibly meet, even if infinitely prolonged.

All perpendiculars, C D, E F, of the plane, P, starting from the different points, C and E, of a line, A B, parallel to that plane, are equal and parallel, and measure the distance from the line A B to the plane P.

XXVIII. The position of a plane in the space is determined by those of three points not in a straight line. Suppose A and B (fig. 20) to be two of those points; a plane merely compelled to pass by A and B could occupy an infinite number of positions, P, Q, R, S, in space, by revolving round the line, A B, that joins the two points, A, B; but if the plane is forced to pass by a third point, C, placed outside of the line A B, its position becomes definitely determined, and the plane P is the only one that can be formed by the three points, A, B, C.

Fig. 20.



The position of a plane is determined by that of two straight lines that intersect each other; for three points not in a straight line can be taken as extremities and the points of intersection of those two lines. Consequently:

The position of an angle formed by two straight lines determines the position of a plane, which is the plane of that angle.

The position of a rectangular triangle determines the position of a plane, which is the plane of that triangle.

Two parallel lines determine a plane, without which they cannot be parallel.

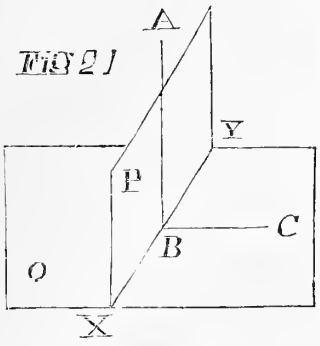
XXIX. *Relative position of planes to each other.*—Two planes can occupy four different positions in respect to each other.

1st. They can coincide.
2d. They can be perpendicular one to the other.
3d. They can be oblique to each other.
4th. They can be parallel to each other.

When two planes coincide, they then form one and the same plane.

XXX. Any plane, P, passing through a line, A B, perpendicular to a plane, Q, (fig. 21), is perpendicular to that plane. The line X Y, on which line two planes intersect each other, is their common line of intersection. In general, when two planes, P and Q, are perpendicular to each other, it is necessary that any line, A B or B C, drawn upon one plane, and perpendicular to their common line of intersection, must be perpendicular to the other plane. Two planes that intersect each other without fulfilling this condition are oblique to each other.

Fig. 21

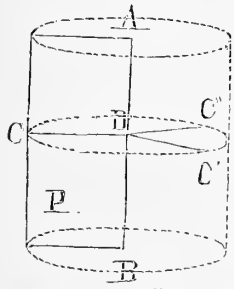


Two planes, P and Q, perpendicular one to the other, are said to be coördinate planes.

XXXI. The intersection line, X Y, of two planes is a straight line. In fact, if three points could be found on this line of intersection that were not in a straight line, the two planes would be coincident, and would therefore not intersect each other.

XXXII. When a plane is made to revolve around a fixed axis within that plane, all the points of the plane describe segments of circles in space, the planes of which are perpendicular to the axis.

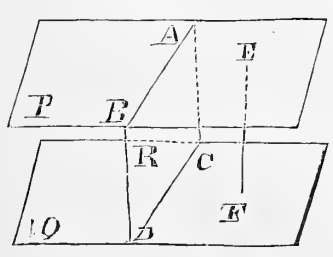
Fig. 22



Suppose A B an axis fixed in a plane P (fig. 22), which is obliged to revolve around that axis, and C a point whatever taken on the plane P. From point C, drop a perpendicular, C D, on the axis. By turning the plane, P, round the fixed axis, A B, the point C, will describe the circumference of a circle, C C′ C″, the plane of which is perpendicular to the axis, A B. By this movement the line C D will not have ceased to be perpendicular to the axis; therefore, the plane that it determines by two of its successive positions, C D, C′ D, not in a straight line, is perpendicular to the axis, A B (art. 26). But this plane includes the segment of the circle described by the point C, and comprised between two successive positions of the straight line C D, therefore, the plane formed by that segment of a circle is perpendicular to the axis, A B.

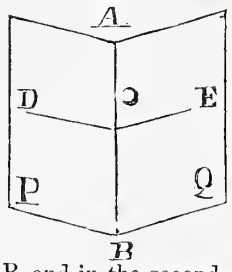
XXXIII. Two planes, P and Q (fig. 23), are parallel when they are so placed that they cannot meet, even if infinitely prolonged. Their lines of intersection, A B and C D, made by a third plane, R, are parallel lines. The distance between two parallel planes is measured by any perpendicular, such as E F, drawn from one to the other.

Fig. 23



XXXIV. (*) The junction of two planes, P and Q (fig. 24), form an angle that is styled the dihedral angle; the straight line, A B, along which the two planes meet, is the edge of the dihedral angle; and the planes, P and Q, are the faces. A dihedral angle is distinguished by its edge when it is alone, and by the edge and the two faces when there are more dihedral angles around the same edge. In the first instance it would be the dihedral angle, A B, and in the second case the dihedral angle, P A B Q or Q A B P, by placing the two letters forming the edge in the middle.

Fig. 24



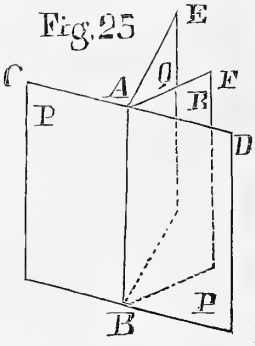
The dihedral angle formed by two planes is measured by the rectilinear angle formed by two straight lines, C D, C E, drawn in each plane, P and Q, from a point, C, on the edge and perpendicular to that edge. The rectilinear angle, D C E, thus obtained is the plane angle of the dihedral angle, A B.

All that has been already mentioned in articles 11, 12, 13, 14 and 15, rectilinear angles can be applied to the plane angles of the dihedral angles, either to indicate the kind of angles, acute, right, or obtuse, or the relation to another angle, opposed, complementary, or supplementary.

In joinery it is of little importance to know the kind of dihedral angle; the chief point is to know how to construct it. There are two manners of conducting the operation; directly or indirectly. The indirect construction is effected by the aid of either complementary, supplementary, or angles opposed to the edge. Considering the importance of the dihedral angles, we will repeat what we have already mentioned on rectilinear angles (art. 14 and 15).

XXXV. Suppose P P′, Q, R (fig. 25), are three planes around the edge A B, and on the same side in respect to the plane P P′, forming three dihedral angles. Suppose again: 1st. That the plane Q is perpendicular to the plane P P′; 2d. That the lines C D, A E, and A F, are perpendicular to the edge A B. The angles C A E, E A F, F A D, formed by those lines, will measure (art. 34) the plane angles of the dihedral angles, that are respectively formed by the planes P P′, Q and R. We shall then have two plane angles (art. 14), D A F, F A E, complementary to each other, the sum of which will be equal to a right angle; and two plane angles, D A F, F A C, which will be supplementary to each other, their sum being equal to two right angles.

Fig. 25

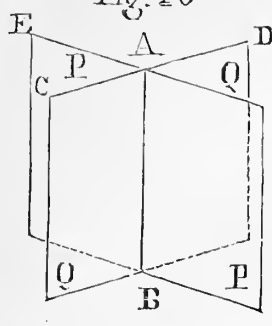


The sum or addition of all the plane angles, D A F, F A E, E A C, of the dihedral angles, formed around the same edge, A B, and on the same side in respect to a plane, P P′, is equal to that of two right angles.

XXXVI. Suppose P P′ and Q Q′ (fig. 26) are two

* In carpentry this angle is designated by the name of scarfing, and is generally the angle formed by the contingent surfaces of two frame pieces, dressed by the long plane.

Fig. 26

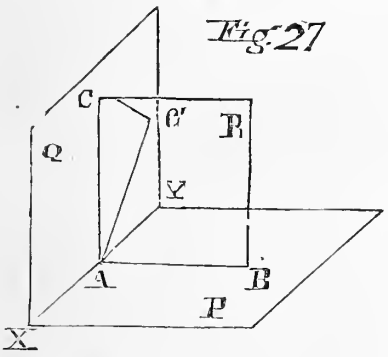


planes, intersecting each other in any manner by the edge A B, and again that the lines C D, E F, are perpendicular to that edge; those lines will then measure the plane angles of the dihedral angles that are comprised respectively between the planes P P′, Q Q′. The angles, such as C A E, D A F, opposed by the edge, are equal. And again, the same angle, E A D or C A F, is their supplement (art. 15). By the same operation it is proved that the two latter angles are equal.

The same of all the plane angles, C A E, E A D, D A F, F A C, of the dihedral angles formed around the same edge, A B, is equal to that of four right angles.

XXXVII. Any plane, R, perpendicular to two planes, P and Q (fig. 27), is perpendicular to their common line of intersection, X Y, and reciprocally.

Fig. 27



Suppose a case where the two planes, P and Q, are coördinate, and let us draw two perpendicular lines, A B, A C, through a point, A, on their line of intersection, X Y, and perpendicular to that line of intersection; the two lines, A B and A C, will determine a third plane, R, which will be perpendicular to the other two. Therefore, the plane passing the line A B, is perpendicular to the plane Q, because it cuts a line perpendicular to that plane (art. 30); and again, the plane cutting the line A C, is perpendicular to the plane P. Consequently, the plane R, that likewise cuts those two lines, is perpendicular to the two planes, P and Q. But the plane R passes through two lines that are perpendicular to the line of intersection, X Y, of the two first planes, and is therefore perpendicular to that line of intersection (art. 26).

This condition exists, whatever may be the dihedral angle formed by the two planes P and Q. Suppose that one of those two planes is placed on the other, the plane Q for instance, and is made to turn round the common line of intersection, X Y, as the axis of rotation. By that movement, the line, A C, will describe a segment of a circle, C A C′, the plane of which is perpendicular to the line of intersection, X Y, (art. 32). Moreover, the plane Q, cutting a line, X Y, perpendicular to the plane of the segment of the circle C A C′, is also perpendicular to that plane (art. 30). The plane R is but the plane of that segment of a circle. Therefore, any plane, R, being perpendicular to two planes, P and Q, is perpendicular to their common line of intersection; and reciprocally, any plane, R, being perpendicular to the common line of intersection, X Y, of two planes, P and Q, is also perpendicular to those two planes.

This problem is of great importance in the solution of dihedral angles, where the nature of the given parts does not always give the demonstration, as we have done by the figures here selected, that a plane perpendicular to the edge or common line of intersection of two planes, is at the same time perpendicular to those two planes. Therefore, as the dihedral angle of two planes is equal to the rectilinear angle formed by their trace on a third plane perpendicular to them, it suffices to construct this third plane perpendicular to the edge of a dihedral angle, because it necessarily follows that it is at the same time perpendicular to the two faces of that angle.

(*To be continued.*)

Home Circle.

OCTOBER.

BY CARRIE M. WHITNEY.

There's a gold and purple glory
Filling Autumn's balmy days;
Distant mountains, grim and hoary,
Seem transfigured by its rays.
Russet tints are deeper glowing
Through the leafy forest aisles;
Shortened days are shorter growing,
While the earth in plenty smiles.

Woodland brooklets' saddest toning
Falls upon my list'ning ear,
Like some sorrow, faint with moaning,
Hushing up its grief and fear.
Dying insects, feebly piping,
Creep beneath the scattered leaves;
Roguish squirrels, briskly skipping,
Rob the yellow harvest sheaves.

Misty curtains, hillward swinging,
Sometimes hide them from our view;
Graceful vines, all summer clinging,
Fade and droop with frost and dew.
Nature all her garb is changing;
Summer's gone, with flowery hues;
Autumn o'er the hills is ranging
In a browner pair of shoes.

Sweet October, in thy glory
There's a sadness undefined,
Like some music's mournful story,
Faintly coming back to mind.
But we hear of glories brighter
Than earth's changing seasons bring;
Glories tinting bright and brighter,
Where immortal flowers spring.

WINTER RAMBLINGS IN KENTUCKY.

BY PORTE PENCIL.

(*Continued from page* 40.)

"Beshrew yon nimble deer."—Scott.

The forests in the valley of Green River abound with game. Deer, especially, are found in large numbers. Now and then an elk is seen, and not unfrequently, raccoons and opossums, with a variety of smaller animals, as common as the inhabitants of those regions may perhaps desire.

As is the case in most newly-settled regions, every able bodied man is possessed of that necessary, and it may be added, that faithful and unerring friend—the rifle.

It is the heirloom of every family, and, essentially, their household god. For it is, indeed, their safeguard and security, and a refuge from the encroachments of famine. In the use of that instrument, I considered myself not unskillful, and longed for a trial in that excellent school—a *deer chase*. A slight snow had fallen, and it being propitious, many hunters had been out. As evening approached, they were to be observed in their white hunting shirts and caps, coming in from all quarters, most of them disappointed, but now and then an individual dragging a victim behind him, or carrying a saddle of venison across his shoulders. A deaf and dumb man held up his fingers in answer to "How many have you seen?" but he very significantly indicated that they were quickly off. Another individual, more successful, had met a buck attempting to swim Green River, and killed him with an ax.

Early in the morning, the preliminary of cleaning rifles, preparing ammunition, and lining our pocket with luncheon, being completed, a party of four or five ventured in pursuit of the noble game. We were not permitted to take hounds with us, under penalty of death to said hounds, and riding on horseback was out of the question in a country of such unmitigated rudeness. We steadily pursued our course down the river about four miles. Here, several of our party crossed in a skiff, or batteaux, there being a portable saw-mill in the woods on the opposite side, and we then pursued a southwesterly course. I soon came upon a fresh trail. Two deer had evidently passed but a short time before. I eagerly embraced the opportunity of following the tracks, and left the remainder of the party. I moved slowly along, step by step, as slyly as a pilferer, carefully avoiding to make the slightest noise, optically visiting every nook and corner of the woods at every remove, with a penetration not unworthy of an Argus, and stifling my breath, that nothing should escape my searching eye or listening ear. Nothing was heard in the midst of that awful stillness but a small woodpecker scratching the bark of a tree, and *my heart* thumping tremendously against the sides of my chest. Hark! there was a bleat! Jehu! carefully, not a breath! See! there they are! One is cropping the underbrush, and the other is smelling the moss! One step more, and then—confound that stick! they are off like a flash! But the feverish excitement had subsided, and I brought the rifle to my face with a manly and determined energy. They were nearly one hundred and fifty yards off, but the ball sped. The doe is struck! Jehu! What a leap! See them bound away! How noble! How graceful! The very poetry of motion! Alas! they are out of sight.

The gun was quickly recharged, and I in pursuit. I soon discovered that I had hit the mark, for the blood was scattered profusely along the snow, and seemed to indicate a mortal wound. One of our original party joined me. We hurried on steadily, and, as the snow grew more and more bloody, and our quarry seemed to be trailing one of her legs, as though one of her shoulders were broken, we anticipated a speedy triumph. The tracks very soon began to indicate a walk, and occasionally a stop; and, whenever the latter occurred, the snow was completely saturated with blood. Still we kept on, and still the game eluded our sight. My companion spied them once, and on we followed. They led us a chase over hill and through valley, now rising over craggy precipices, now trudging windfalls and ravines, now sliding down a bank, now leaping a log or fording a stream. Still excited, warm, perspiring, we eagerly hastened on. But one care, one thought, one passion possessed us—the focal object of all our present aspirations was still ahead. Did we stop to rest? Not we. Had we one thought of the world and all its mazes of care and perplexity? Not we. Had we a care of our bodies and souls, or murmured we at the hollowness of earthly pleasures, and the unsatisfactory results of worldly pursuits? Not we. Our mental and bodily vision glanced only from the game to the rifle, and from the rifle to the game. From all things else we were abstracted—in these we were absorbed.

We have heard people talk of the philosophy of deer hunting; what is it? There *is* philosophy in deer hunting, but I opine it is seldom taken into the account of that pseudo philosophy which some pretend to find, and is too unfrequently carried into practice anywhere.

Deer hunting *may* develop two of the noblest qualities which appertain to the character of a great man; these are, forbearance and humility, or rather the mastery of pride. Pride is at the bottom of all the excitements of the chase. It is because a man is elated at the idea of manifesting his superiority, and of asserting his title to the lordship of creation. Perhaps fear also operates, and the fear of defeat and its consequences excites. He has an object to accomplish. Here is the timid deer that flies at his approach, and it is fortified with an ear too quick for abrupt or easy intrusion. And there is, for instance, the cunning fox, the soaring ospray, the cautious yet feline tribe, the wild horse, the furious and untameable gnu, the sagacious elephant, and the unwieldy whale, and an innumerable variety of other animals, whose wildness, timidity, nature or cunning, fortify them against the rapacity of each other, and enable them to elude the frequent or easy approach of man. But notwithstanding the various endowments of these animals, man *is* lord over them all. All of them are liable to his approach, and accessible to his hands. And man is proud of it, and because, perhaps, this individual has never felt the reality, he feels elated when an animal is brought to the test, and he begins to realize that he is superior to all its instinctive cunning and device. His reason has compassed the instinct. Is he satisfied? Does he forbear? No, too often other passions usurp the place of reason, and he heedlessly destroys, lest he should have no testimony of his triumph. A man who can master his pride will be magnanimous enough to forbear. He will be satisfied in knowing his power without permitting it to degenerate into reckless tyranny.

In our case, we were so elated with the idea of catching a deer, that for the moment we were unconscious of anything else, we should doubtless have destroyed, had it been in our power, but we should have done so for the virtue of a saddle of venison; I had possessed the power, probably, had I possessed a true gun. At one time a fair broadside chance presented itself within a hundred yards, my piece was up, and the precious thing snapped; we pursued; all day long had we tramped through that interminable forest, and still we pursued the track, climbing over and creeping under, winding and meandering about, we reached a creek as twilight came upon us. The deer were still ahead, though they were evidently fatigued, and one of them mortally wounded; but here we per-

mitted our pride to humble itself, our excitement to be subdued, and we had the magnanimity to forbear. Relinquishing the *deer* chase, we continued our course up the creek, supposing it to be the identical stream that carried us homeward, which we had left in the morning, and that, therefore, we should find our way home with convenience. But alas, we there again predicated too much upon our superior sagacity; we hurried on, pursuing the circuitous meanderings of the stream with exemplary patience. The darkness grew intense, and we still pressed on, not, however, without an intrusive thought, occasionally, relative to "camping out." We were frequently thrown into troublesome dilemmas and grievous embarrassments in consequence of the extreme darkness, from which nothing but extraordinary *elasticity*, great patience, and long suffering could ever extricate us. To "run a muck" up to your waist in mud and mire in a cold, dark night, in the midst of a wilderness, is a grievous embarrassment. To fall headlong from the prostrate trunk of a tree into a quadrangular log pen of formidable height, formed by the various interlocutory proceedings of a windfall, in a similar night, and in a similar wilderness, is to fall into a troublesome dilemma. To be scratched at by a wild cat in times and circumstances similar to the aforesaid, is to meet with a very disagreeable *cat*astrophe. But, thank Heaven, we were finally emancipated from these troublesome dilemmas, grievous embarrassments, and disagreeable *cat*astrophes. We emerged upon the banks of Green River in the course of the evening. We discovered lights upon the opposite side, and our cries were answered by a boy who came across for us in his skiff, and were soon snugly seated by the fireside of a settler. To our great surprise we learned that we were the guests of persons residing at the settlement about thirteen miles below the point whence we started in the morning.

That, according to moderate calculation, we had tramped about thirty miles, in the pride of our superiority, in pursuit of two deer.

On reaching Mason's Ferry, the point from which we started the day before, we were greatly astonished to hear all sorts of noises resounding on every hand; there were yells and bells, horns and guns, and

"To many a mingled sound at once
The awakened mountain gave response."

We discharged our rifles several times in rapid succession, and very soon, to our great amusement, some half dozen of the good citizens of Mason's Ferry, came galloping in, with countenances full of anxiety, flourishing the aforesaid instruments of detonation. They treated us like brothers who had been lost and found, or like captives rescued from the barbarity of an enemy. It seemed that the whole village had been awakened by the presumption that we, being strangers, were lost in those interminable woods infested with wild animals. We satisfied them, however, that we had not been altogether unworthy disciples of Nimrod, and returned to the village, not a little pleased at the whimsical result of our adventures in a deer chase.

(*To be continued.*)

PADDY'S WILL.—"I will bequeath," said an Irishman, "to my beloved wife, all my property, without reserve, and to my oldest son, Patrick, one-half of the remainder, and to Dennis, my youngest son, the rest. If anything is left it may go to Terrence McCarty, in sweet Ireland.

Pen Illustrations of the Drafts.

DROP-FRONT ROCKAWAY.

Illustrated on Plate XVII.

THIS original and unique design, if carried out in building, strictly according to the plan of the draughtsman, will make a very pretty and light vehicle for the family of a person of moderate means. Some labor has been expended in studying out the best mode of making a *short* body *long* enough for two seats, and this has been effected by extending the forward seat in front of the standing pillar, and dropping the toe-board so as to give sufficient leg-room to the passenger. The high door-panel and sliding window will be found exceedingly useful when the carriage is used in rainy or cold weather, with the curtains down. A shifting-front to a carriage of this kind is very desirable and useful in securing the occupants against the inclemencies of the weather.

Linings, blue broadcloth, edged with patent leather.

Painting, body, English patent black; under carriage, crimson; striping, broad line black, fine line edged white.

Wheels, 3 feet 6 inches and 4 feet 2 inches high; hubs, 4 by 6½ inches; spokes, 1 inch; rims, 1⅛; tire, steel, ¼ by 1 inch. Price of carriage, about $800, currency.

EXCELSIOR DOG-CART.

Illustrated on Plate XVIII.

OCTOBER furnishes ample game for the exercise of the sportsman; and since our Nimrods *may* require *something* in which to stow away the victims of their marksmanship, we have thought it advisable to present them with an excelsior dog-cart of the latest type. This, the reader will see, is a genuine dog-cart, with all the sliding fixtures for balancing the body as occasion may require, and breathing openings in the sides for the dogs, which are supposed to be stowed away therein.

Linings, for these vehicles, are best made of some kind of leather.

Painting, body, black; carriage, vermillion, striped black and white.

Wheels, 4 feet 10 inches; hubs, 4x7 inches (*unboiled!*); spokes, 1¼ inches; felloes, 1½ inches. Price, about $575.

TROTTING COAL-BOX BUGGY.

Illustrated on Plate XIX.

OUR artist has in this design combined several new features decidedly original. The side moulding for this body should be triangular and raised. This should be painted with some color in strong contrast with the side panel, to show off well.

Wheels, 3 feet 10 inches and 4 feet 1 inch high; hubs, 3¼ by 6 inches; spokes, ¾ inch; rims, ⅞ inch; tire, steel, ⅛ by ¾ inch. Price of buggy, $325.

COAL-BOX, WITH TOP.

Illustrated on Plate XIX.

We present the reader, in this design, with one of the best we have lately come across, and which we trust will give satisfaction to men of refined taste. Except the front pillar, slightly raised, the side is quite plain, with rounded back-corners, a little concave. The builder will find some useful instructions in forming round corners in Volume X, page 99, of this Magazine.

Wheels, 3 feet 10 inches and four feet 1 inch; spokes, 1 inch; hubs, 3½ by 8½ inches; rims, 1 inch. Price $450 to $460.

CANOE COAL-BOX, WITH TOP.

Illustrated on Plate XX.

If this should not prove all our readers could wish, they will yet find it of sufficient novelty to recommend it to their attention. All combinations of this kind are attended with more or less difficulty, and some allowance, perhaps, should be made by the critic, on this account, in making up his judgment as to the merits of the design under consideration. If customers will have variety, the carriage-maker *must* stand ready to supply the article when called upon to do so, or suffer the losses involved in such refusal.

In this instance it is advisable to have a little swell on the canoe panel, which may be effected by working-out in the solid, and paneling the upper side-quarter with white-wood deal, lapped thereon and glued; the joint being afterwards covered with a moulding, in the shape of that in our design. The back panel, as will be observed, is rounding.

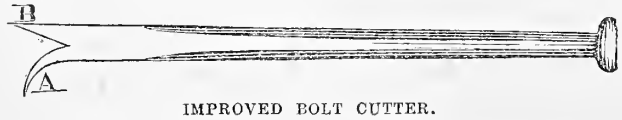
Wheels, 3 feet 10 inches and 4 feet 1 inch high; hubs, 3¾ by 6½ inches; spokes, 1 inch; rims, 1⅛ inches; tires, steel, $\frac{3}{16}$ by 1 inch.

Our remarks on painting and trimming the "scroll coal-box buggy," on Plate IV, page 10, of this volume, are applicable to this likewise. Price of buggy from $460 to $475, according to finish.

Sparks from the Anvil.

BLACKSMITHS' "DEVIL" OR BACKING CHISEL.

Mr. Editor: Notwithstanding that many carriage-smiths use the new patent bolt-cutter, some still prefer the old fashioned "devil." For this reason I deem it proper to give you a description of an improvement made in this tool. No doubt, many have felt themselves in danger while holding the "devil" or "backing chisel," fearing lest the ends of the cut-off bolts should fly and strike them in the eye or face; the accompanying cut will show how to prevent such accidents. A is a guard turned up the width of the cutting part B; the guard also acts as a preventative against skinning the knuckles when a bolt is cut suddenly off by the cold chisel.

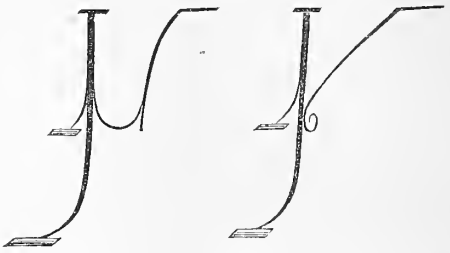


IMPROVED BOLT CUTTER.

Cinder Head.

DESIGNS FOR BUGGY STEPS.

The carriage step is a very important portion of the vehicle, and offers a wide field for the exercise of talent in a designer. Without claiming any great merit for those connected with this article, we present them to our



readers, in the hope of awakening an interest in this direction among our correspondents which may produce something of superior design.

WHEN ARE CARRIAGE WHEELS PLUMB?

"Mr. Editor: I wish to know when a wheel is considered as set on a plumb. I am a carriage-smith, and my plan is to take, for instance, two carriage wheels with dodged spokes, and set my axle so that it will measure the same distance from one spoke to the other at the hub that it does at the head. I mean, of course, the front spokes. Others contend you must measure from half way between the dodged spokes on each wheel. Which is correct?"

The above, among numerous other questions which we cannot find time to answer in detail, comes from a journeyman carriage-smith in Michigan. As the "plumb spoke" theory has lately been agitated in certain localities, we have thought it advisable to append a few remarks on the subject for the satisfaction of others interested therein. To begin, we must make a distinction between the plumb wheel and the plumb spoke. A plumb wheel would be that set with the face sides of the felloes to a plumb line, without reference to the position of the spokes. A plumb spoke would imply one standing perpendicular with a line touching a point at the centers of the sides of a spoke at both shoulders. It is quite evident that where the spokes dodge—that is, are set zigzag—one-half the number must be out of plumb. For this reason, we have always contended that the spokes in a business wagon should be set on a line with each other. The *dodging* practice adopted in modern times is simply a mistake, intended to make a wheel look lighter at the expense of practical utility. To have all the spokes as nearly plumb as possible in a spoke-dodged wheel would undoubtedly require that it be measured "half way between the two dodged spokes."

In this connection it may be asked: Is it advisable to set an axle so as to have the spokes plumb? We answer, yes. And why should this be done? Because *in that*

position the wheel will be the more favorably placed for bearing the superincumbent load. A dished wheel (for a wagon) is stronger than a straight or undished one, under all circumstances, and the spokes (not the wheel) should invariably be set plumb. When thus set, the tops of the wheels will set "flaring out," accomplishing two purposes: gaining the greater strength for the wheels, and avoiding the mud thrown up thereby. We have tried the straight wheel—one with a slight dish—on the New York pavements, and found that the tremulous motion imparted to the spokes in driving soon causes them "to work" at the shoulder, and where such are used in the country, they soon break off at the hub. An article from a correspondent, printed on page 162, Volume V., of this Magazine, under the heading of "Why Wheels are Dished," may be read with profit by all concerned.

METAL HUBS.

In the American Institute Fair, noticed elsewhere, we saw a very ingeniously constructed hub, which the inventor thinks will revolutionize the whole art of wheel making. We do not know how well to describe it without a drawing, but we will try. Suppose an ordinary wheel box is cast in brass, with the dovetailed mortices for the spokes solid with and raised thereon to the proper height. The spokes are now pressed into these mortices, eight from the back and eight from the front, flush with the ends of the mortices. Next two caps—one from the back and another from the front—are slipped on to the box-spindle against the edges of the spokes so as to hold them not only firm, but to finish the hub, which, when painted gives a very light looking nave of about 2½ inches diameter, and a firmness to the spokes never seen before, the whole weighing but a trifle more than wood.

Paint Room.

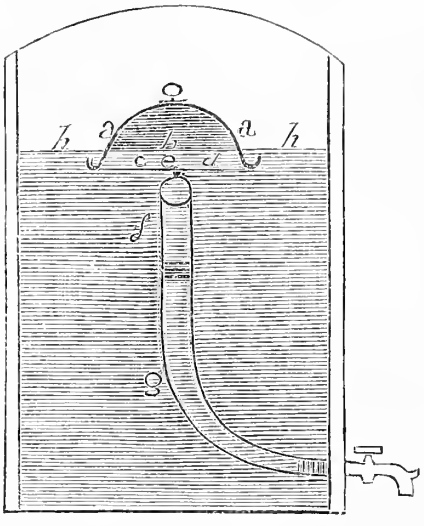
WHEREIN AMERICAN AND ENGLISH VARNISHES DIFFER.

Much has been said the few past years in relation to the superior qualities of English varnish, and many experiments have been tried, we believe with indifferent success, among Americans to produce an article equal in every desirable good property with it. Some varnish makers insist upon it that they can and do equal the English, but that prejudice prevents its general use, and they cannot sell the article. English workmen have, to our certain knowledge, been employed, and still they have never succeeded well, either from lack of knowledge of the proper ingredients, or willful intention in suppressing the labor secrets of the manufacture.

It has been suggested to us that the chief, and perhaps most essential, difference in the two articles, English and American, is, the former has more linseed oil in its composition than the last. This idea is supported by two facts: the one is, the English takes more time in drying; and it is much more easily spotted with mud when newly painted. The mud undoubtedly "drinks up" the oil in a measure, and thus destroys the "shine." It may be objected to our theory, that English varnish is more easily affected by damp than "the home-made" article (an indisputable fact); but this is due, we think, more to the circumstance of its being soft a long time after it is spread, and therefore the longer time acted upon than the American. We have even heard it asserted that the imported article never does become hard on the under side, only on the surface. This whole subject is a matter of sufficient importance to challenge discussion, which we now invite for our pages from correspondents.

APPARATUS FOR TAKING VARNISH FROM THE CAN.

Much of the trouble complained of in varnishing comes directly from the settlings found in the can from which the material is drawn. This, under ordinary circumstances, can scarcely be avoided, but with the apparatus of which we give an illustration, varnish may be obtained in a much purer state than heretofore, leaving the "settlings" out entirely. The invention is original with our friend, John B. Peck, who now gives it to the trade unpatented.



In the diagram, *g* is a flexible hose of India rubber or other suitable material, extending from the top to the bottom of the can or barrel; the lower end of which is attached to a faucet in the side, allowing nothing to pass which does not first enter the top of the hose, kept in position by a float. *f* is a short open pipe of thin copper, tied to the upper end of the hose, keeping the mouth always open; *e* is the union joint, by means of which the hose is suspended to the cross-bar *c d*, of the float; *a a* is the float made of sheet copper in a hemispherical shape; *b* is an air-tight cavity, large enough to buoy up the cap and hose. When in position, the margin of the air-tight cap will float a trifle below the surface of the varnish *h h*, in which it stands. By this arrangement all dust which may be lodged on the surface from any cause will be effectually excluded from entering the mouth of the hose, thus, at both ends, securing advantages hitherto unknown in the drawing off of varnish and delivering it into the cup in the cleanest condition for use. If any of our readers can produce a better contrivance for the purposes indicated we shall be glad to hear from them.

ORIGINAL MONOGRAM.

Illustrated on Plate XX.

The monogram we publish this month is from our correspondent Mr. J. S. Leggett. The letters M. B. & Co. are very ingeniously interwoven, making the prettiest firm monogram we have seen in a long time. For young beginners a study of this engraving cannot prove otherwise than profitable.

Trimming Room.

SHIFTING-CUSHIONS AND OTHER LININGS IN ONE.

In the American Institute Fair, elsewhere noticed in this number of the Magazine, we saw a novel mode of trimming—at least new to us—which impressed itself upon our mind as being a good thing, especially for cities, where room for carriage-houses is too expensive and valuable for men of limited means always to command. This was the lining to a three-quarter buggy, on exhibition by Geo. J. Moore, carriage-maker, of this city. The entire lining was in one compact whole—squab, cushion, and all—easily put in or taken out at will, when the carriage is not in use, and stored in a box, secure against moth or dirt. A little care with such linings would for a long time preserve them in good condition, or nearly as good as new.

The cushion, in this instance, was about three inches high in front, and about six inches back, something after the pattern of the driver's seat to a coach, stuffed, and tufted with covered buttons; cloth and buttons all blue. To the made cushion, the squab, made of cloth-covered buckram, with a neat roll on the top, was sewn, so that when the two united were placed in position, the roll formed a perfect finish, flush with the inside edges of the close-paneled seat. The fall, sewn to the lower front end of the cushion, and all trimmed with patent leather lace, completes the job. With our description, which cannot be well explained in the absence of a diagram, we think our trimmer readers will know how to go to work and make one for themselves. Customers who are not blessed with the most perfect carriage storage will no doubt properly appreciate this improved mode of trimming carriages, and thank us for the suggestion.

CLEANING CARRIAGE LININGS.

There are several modes in which cloth linings may be improved after becoming soiled, but none in which they can be expected to look as good as new. Pearl-ash and hot water, in the proportion of a pound of the former to a pailful of the latter, well dissolved, may be applied to the lining with a soft brush, and well rubbed. While wet, wash the lining with vitriol in water, weakened to the strength of three ounces of oil of vitriol in half a pail of cold water. The vitriol should not be too strong, as in that case it would injure the fabric.

Editor's Work-bench.

NATIONAL LABOR CONGRESS.

The so-called National Labor Congress, which lately met in the city of Philadelphia, is, in all quarters, conceded to have been a failure. The varied elements of which it was composed operated with too much friction, under incompetent and uneducated leaders, without definite purposes. The proceedings consisted of desperate clutches at something altogether beyond their reach, and consequently ended in fruitless labor, as might have been foreseen. In the confusion which transpired indiscriminate attacks were made upon the government, and especially upon the most enterprising and industrious classes, who, by patient care and prudent lives, have accumulated wealth, without which, to pay for labor, these grumblers would soon die of starvation. The currency, by the way, —what did these men know of finance?—was in one hour praised, and in the next as earnestly condemned. The national debt was in the same breath repudiated and approved. Free trade was also advocated and condemned; while the Chinese importation was looked upon as detrimental to the *dearest* interests of labor, and therefore should be discouraged. The legitimate and proper business for such an assemblage was entirely overlooked, in the pursuit of an *ignis fatuus* which led them into muddy pools and quagmires innumerable, without any adequate or practical results. Narrow adherence to unionism seems to have entirely absorbed every consideration of anything calculated to benefit the industrious and well meaning man, who confidently expected some good as the result of taxation from his representative.

The peculiarly arbitrary and tyrannical conduct of these unions, was strikingly exemplified in the action of the delegates towards Susan B. Anthony, the delegate from the Working Women's Union of New York City. Following the instructions of the Engineer's Protective Society, to vote against her admission, as noted in our last issue, they spent about two days in making up their minds what to do with her—the first day shutting the door against her entrance, and the next inviting her to come in. Every law tending to the safety of personal effects were indiscriminately condemned, and the most deadly ideas of agrarianism heartily approved. Not content with condemning the laws in this country, they even went abroad and pitched into those of England. They, in fact, seemed to have entertained but one idea, which was, that labor is king and capital, should be made to succumb to its power, and then the laboring man's millenium will commence.

Since the above was written, the members of the Working Men's Union, in New York City, have held a meeting for the purpose of repudiating the action of the Philadelphia Labor Congress to which they had sent delegates. Very little progress was made in the matter, action being postponed until another day, when it is contemplated holding a mass meeting to ventilate the subject.

WHY DO WE OIL OUR WHETSTONES?

It is an admitted fact, that water increases friction, and oil diminishes it. What, then, is the reason why a steel-edged tool is quicker set upon a Turkey stone with oil than with water? What, then, does the abrasion pro-

eeed from, a chemical or mechanical action, or from both? Great men sometimes give utterance to arrant nonsense, when weighed in the minds of practical mechanics. Professor Tyndall, in his work, "Heat considered as a Mode of Motion," asks the same question that we have placed as a caption to this article, and replies in general terms, "that it is to prevent friction." We have seen it stated somewhere that a little carbolic acid dissolved in water used to moisten a whetstone or a grindstone will greatly increase the amount of friction, and thus promote the action of the stone upon the steel tool. If this be true, and there be no unforseen drawback, carbolic acid will prove invaluable to all who have to sharpen tools or grind metallic surfaces.

We oil our stone for several reasons. The first is, that almost all stones, unless oiled, become glazed or burnished on the surface, so that they no longer abrade the tool. The second is, that most stones, after being oiled, give a finer edge than they do in a dry or merely wet state. The pores of the stone become in a manner filled up, and while the action thus rendered continues, its character is altered. A dry stone is very apt to give a wire edge to a tool, and although this sometimes happens when oil is used, yet it does not occur nearly so often. It has also been lately ascertained that soap and water are as good as either oil or water, being less expensive, more efficacious, and more cleanly.

AN HOUR AT THE AMERICAN INSTITUTE FAIR.

We took a look into the American Institute Fair a week after the opening. All the carriage work then in consisted of one buggy, made by Geo. J. Moore, and what John C. Ham, who contributes it, calls a "six-seat-circular-clarence-front-Westchester-family-carriage." The buggy, weighing only 150 pounds, is very well finished, but there is nothing (unless it be the trimming) particularly new in the composition. The clarence, Ham's make and invention, may answer the purpose it is designed for, but is unnecessarily heavy, and faulty in design. We regret, on several accounts, the poor show made by the craft this year so far, and hope it will improve before this exhibition ends.

The show of velocipedes is much better, but as these are getting rather out of date, an examination of them here may well be omitted. The exhibition otherwise is very fine, and should anything be added of interest to our readers hereafter, we shall return to the subject in our next.

BOILING HUBS.

One of the "most reliable" mechanical journals published in this country, not long since recommended its readers, if they would improve their hubs, to boil them in the way they do their cabbages, as the dry and hard material—you know—is not the "fresh" mode of *doing the thing*, in the line of making wheels. When our eye fell on the article, we could not for the life of us, avoid laughing heartily over the matter, but we did not then suspect that any one would follow such silly advice. But it seems we were mistaken. Many persons, to their sorrow, have tried the experiment, and come out—with loss, as any man of practical experience ought to have known beforehand. We hear of one man who had two sets boiled, and others who tried one, with the like result. In every case the spokes loosened soon after being driven, the wheels proving a complete loss. The three-dollar advice their victims followed, they now pronounce a humbug, and are down on the editor in consequence. That "whistle" *was* dear, was it not? Suppose you try green hubs, and save your firewood. But experience keeps a dear school, yet ——

VELOCIPEDE SUITS.

In answer to the correspondents who have inquired about the progress of the law suits instituted against the manufactuers of velocipedes, in New York, for alleged infringements thereon, by Witty & Smith, we can only say that nothing has been done more than the service of notice on the parties complained of. Of course the proper answer will be forthcoming in time, but we question whether the trial will ever take place. Those who are interested can now afford to wait until they hear more from us on this subject, *and keep their money*. Those who have settled the "trespass," will reflect upon their folly at leisure Meanwhile, we venture the opinion that, with the waning popularity of these boyish playthings, these law suits will find a premature grave.

IMPROVED HUB AND AXLE-BOX.

Our readers will find in our advertising columns a notice of the Patent Excelsior Hub and Axle-box, manufactured by the enterprising Elizabethtown Steam Manufacturing Co., located at Elizabethport, New Jersey. We have not, ourselves, seen the invention, but learn, through a source entitled to credit, that it is a great improvement over former experiments in many particulars, causing a carriage, to which they are applied, to last longer, ride easier, and run less noisily. When we receive the proper illustrations of this invention, we intend to refer to the subject again. In the meantime we invite a careful perusal of the advertisement.

LITERARY NOTICES.

Man in Genesis and in Geology; or, the Biblical Account of Man's Creation tested by Scientific Theories of his Origin and Antiquity, by Joseph P. Thompson, D.D., LL.D., is the title of a new work, just published by S.

R. Wells, 389 Broadway, New York. Price $1. This little volume is a valuable contribution to literature in showing the harmony of the word of God with scientific facts as revealed in geology. In discussing the subject, the Doctor goes back through ethnology to the origin of the human race, and examines critically the theories of older as well as those of modern writers and philosophers on the Development Theory, in order to arrive at the facts and thus settle the question. This he has accomplished in an able and satisfactory manner to the friends and lovers of sacred history.

Every Saturday, published in Boston, by Messrs. Fields, Osgood & Co., has now reached its 195th number, and, if anything, is more interesting to-day then it was in the earlier issues. Those who have leisure and taste for the choicest literature—the very cream of the foreign publications—and wish to avoid the cost and trouble of selecting it for themselves, will find it all here ready to their hand. Price, 10 cents a number or $4 a year.

EDITORIAL CHIPS AND SHAVINGS.

Origin of Coaches.—The invention of coaches, even to the name, is claimed by Hungarian writers in behalf of their country. They say the place where they were made was called Kottse; and Lithius, Bishop of Wesprim, writes concerning King Matthias Corvinus, that he rode in a *Kochy* (pronounced *Kotsi*) carriage, of which he was the original inventor. Coaches were introduced into England in 1580.

Wrinkles showing the Age of Horses.—It is said that after the horse is nine years old a wrinkle comes on the eyelid, and every year thereafter he has a well-defined wrinkle for each year over nine. If, for instance, a horse has three wrin kleshe is twelve, if four, he is thirteen. Add number of wrinkles to nine and you will always get it. As a good many people have horses over nine it is easily tried. If true, the horse dentist must give up his trade.

Preserving Wood.—A new process for preserving wood by means of borax is announced. The wood, it is said, can be made impermeable to water by dissolving some shellac in a solution of borax.

Dumping Wagon.—Some one, writing from Maine, thus describes a new one: "There is a hard wood beam extending from the rocker to the rear axle, on each side of the body, which beams support the body in dumping *only*, as they rest upon the rocker at the fore end, and upon the iron rod, hereafter described, at the rear end, when the wagon is in motion. But when the body is dumped, it turns upon an iron rod which extends from beam to beam and through the sills of the body, thus making a hinge upon which it dumps. The body extends back only to the rear axle, and the side-boards are cut obliquely, so they will not touch the axle in dumping. The loss in the side-boards is made up by the triangular pieces built upon the tail-board. The tail-board is hung by a hinge upon the axle, and may be turned down or not, when the body is dumped, at the pleasure of the operator.

"The body, when loaded, is supported upon the rocker at the fore end, and at the rear end by an iron rod running from beam to beam, just in front of the axle, which is grooved just enough to permit the rod to be withdrawn from beneath the bottom of the body (which is trimmed with sheet iron two inches wide to prevent wearing), when the load is dumped, which is done by means of the upright lever, which is a continuation of the rod, and is bent upwards at a right angle as soon as it passes through the beam, and it works the rod back into the groove in the axle to let the body dump, or it pushes the rod under the body to hold it up and sustain the load.

"This lever is held in place, to prevent accidental dumping, by a spring attached to the beam at one end and running back to the lever, and has a notch in it, into which the lever slips, and is firmly held. The load may be easily dumped with one hand. No other fastening is needed. The beams for a single wagon should be five inches wide and one and a quarter inch thick. They should extend above the rocker and axle about an inch."

Inventors.—It is reported that one day, when Lord Brougham had driven to the House in the vehicle of his own invention, which Robinson the coachmaker had christened after him, he was met in the robing room by the Duke of Wellington, who, after a low bow, accosted him: "I have always hitherto lived under the impression that your lordship would go down to posterity as the great apostle of education, the emancipator of the negro, the restorer of abused charities, the reformer of the law; but no—you will hereafter be known only as the inventor of a carriage." "And I, my lord duke, have always been under the delusion that your grace would be remembered as the hero of a hundred battles, the liberator of Europe, the conqueror of Napoleon; but no—your grace will be known only as the inventor of a pair of boots." "Confound the boots," said the Iron Duke; "I had forgotten them—you have the best of me."

Tariff of Carriage Repairs.—Under this heading the *Hub*, in its issue for September, gives a list of prices charged in New York for repairs on old work, which in the main is a fair statement. Some items, however, are a little too high to correspond with the facts, and therefore should be taken *cum grano salis*. The same publication promises a similar list for Boston, in October.

Death of the Parisian Omnibus Founder.—Morean Chaslon, founder of the original omnibus company of Paris, has just died in that city. For thirty-five years he conducted it with such skill and energy that when, in 1834, the various concerns passed into the hands of a single body, he was appointed general manager, and continued in that position till his death. The scale on which omnibus traffic is carried on in Paris may be judged from the fact that, during the year 1868, the number of persons carried in these vehicles amounted to 120,000,000, or nearly sixty-five times the entire population of Paris, while during the same period the number of passengers conveyed by the French railways was only 115,000,000. The average fare being four and a half sous (six sous in the interior and three on the impériale), the gross receipts must have amounted to about 27,000,000 francs.

Fires in Carriage Shops.—On Friday evening, the 27th of August, a fire broke out in a wood yard in the rear of Henry G. Power's carriage shop, on Atlantic street, Brooklyn, N. Y., which, connecting with the shop, completely destroyed it. His loss amounts to about $25,000—$15,000 on stock and $10,000 on buildings. . . . The carriage factory of Robinson & Brothers in Wilmington, Del., was burned down some weeks since. . . . Tretheway, Hartmeyer & Co.'s carriage manufactory in East Melrose, was burned on the morning of the 10th of September. Loss, $24,000.

Mule Race.—Fun in Westchester Co., N. Y.—The mule race on the 10th ult., at White Plains, as an absurdity, was a success. There were six animals, all of which were mounted by riders unfamiliar with them—two colored men, and the rest country boys. The scene at the start was lively. No stirrups were used, and the riders held on by pulling at the bridle. The brutes were therefore perpetually on the gape, with their tongues run out. Sly cuts were given them by the whips of bystanders, and they gave vent to their misery by kicking their heels and braying. A bell was rung for starting, and off they went. One soon sidled against the chains and frightened the women, another sent his driver over his head, a third careered among the carriages and nearly upset a team, and a fourth, when half round the course, backed against the fence, and would not move. The fifth and sixth kept ahead, but one of them made up his mind to eat some grass, and no number of whacks could move him. The winner, therefore, came in nearly five minutes before any others.

Uniforms Needed for the Drivers of Hearses.—One of the most incongruous features of the American high society is the costume worn by the drivers of hearses and carriages at funerals. Even when the vehicles are good and clean, the drivers are often dressed without regard to uniformity, or even to good taste and cleanliness. This was especially conspicuous in the funeral of Gen. Rawlins at Washington on Thursday. The hearse was gorgeous, and the carriages in the procession, two hundred in number, were as good as could be hired in Washington—that is to say, they were very poor indeed. But the absence of any uniformity of dress, and the general shabbiness of the coachmen, made the pageant the reverse of imposing. Indeed, but for the solemnity of the occasion, it would have been ridiculous. This is apt to be true also of the most carefully arranged funerals in New York, for the same reason.

Duties on Carriages in 1868.—From the report of Gen. F. A. Walters, chief of the Bureau of Statistics, we learn that $10,313.86 were paid as the amount of duties on carriages for 1868.

Repentant.—An editor, famous for allowing his correspondents, in connection with himself, to slander and libel his cotemporaries, tells us that hereafter all personalities will be avoided in his journal. We have very little confidence in such late repentance, and, therefore, shall await with some anxiety after results, especially as exposures of certain transactions of his in our pages have had some effect upon the *sick sinner*.

Publisher's Thanks.—We have to thank a number of our friends for the prompt manner in which they have responded to our call for the amounts due us in subscriptions to the present volume. There are a few, however, from whom we have not heard. Such will doubly oblige us, if they will mail the sum due, and save us the very expensive costs of collection by express. Friends, please attend to this matter.

Central Park Novelties.—An enterprising party in this city has obtained permission from the Commissioners of the Central Park to run a number of little goat teams therein for children's use. These small-size four-in-hand "turn-outs" will be constructed in the exact proportions of a six-seat phæton, and large enough for six boys of the age of thirteen. These will be richly finished with gold platings, lamps, and everything constituting a first-class turn-out. As they will be driven on the sidewalks by the boys, and accompanied by a keeper, there will be no danger of accidents. Every child will get, after the ride, a photograph of the team, with a number on its back, which entitles the holder to a prize in a monthly gift distribution, consisting of toys and other small articles. All for 25 cents.

Carriage-Makers' Relief Society.—The annual picnic of this society was held on the 7th of September at Mr. Henry Menshausen's Grove Hill Park, Morrisania, N. Y. Among the invited guests we noticed Messrs. Brewster and Britton, of the firm of Brewster & Co., of Broome Street; Mr. Henry Scharch, of the firm of Corbett & Scharch, Twenty-fifth Street, and others. Target practicing was one of the amusements of the day, and a number of valuable prizes were contributed, the first, being a splendid gold watch given by Mr. Brewster, was won by an employee of the firm.

Carriages for California.—Quite a number of wooden side-spring wagons are now being built by Rahway, New Jersey, carriage-makers, for California. These wagons, although looking heavier than our Eastern styles, are of very handsome appearance and fine finish.

Making Steel.—Judging from the "improvements," we find so often alluded to in scientific journals, steel ought to be far superior to anything known in former days. Perhaps it is. At any rate manufacturers would have us think so, and some consumers use Bessemer's name as an instrument in obtaining custom. The Bessemer process is covered by numerous patents, and with the object of avoiding the law relating thereto, numerous expedients have been resorted to to escape its enactments, and secure a profitable business, both in America and Europe.

London Times on Trades Unions.—In a late editorial the London *Times* says, the rapid spread of the fallacies of the trades-unionists is deserving of more than mere attention. The unions will flourish; and as associations for mutual assurance, and as organizations for supporting the bargains of individual laborers they serve useful purposes. But in molesting non-members they violate freedom in a way which the state cannot tolerate. It is essential not to abolish the unions, but to convince the members of the errors they have embraced.

Enterprise in Bridgeport.—The labor of twenty-five to forty hands, employed by the White Manufacturing Company, aided by a thirty-horse power engine, is required for the manufacture of about fifty pairs of coach and carriage lamps per month—a fact which conclusively proves that the lamps are of the most thorough workmanship and best quality. This company has been established in Bridgeport twenty-five years, and for ten years have occupied the same location. Their factory is sixty by forty feet, and three and a half stories high; and their engine was built by the Pacific Iron Works. The manufacture of the finest coach, carriage and signal lamps, lined with gold and silver foil, is their specialty; but they also do an extensive business in carriage trimmings, gold and silver plating, etc.

A Few More Left.—We have a few copies of Nos. 5, 6 and 7 Carriage Charts still on hand, which we sell for

$1 a copy, single, or the three for $2.25, when purchased together. The three embrace about eighty designs of buggies, dog-carts, rockaways, victorias, phaetons, bretts, coaches, coupés, etc., useful in any carriage factory, in securing custom. Sent by mail on receipt of price.

A Nice Point Decided.—An English paper has discovered the line which divides a distinction from a difference: "A little difference frequently makes many enemies," while "a little distinction attracts hosts of friends to the person on whom it is conferred."

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

New York, Sept. 20, 1869.

Apron hooks and rings, per gross, $1.25 *a* $1.75
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 8c.
Axles, plain taper, 1 in. and under, $5.50; 1⅛, $6.50; 1¼, $7.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $7.50; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half pat., 1 in. $10; 1⅛, $11; 1¼, $13; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅝ in., $11.00; ¾, $11; ⅞, $12.00; long drafts, $2.50 extra.

☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.

Bands, plated rim, 3 in., $1.75; 3 in., $2, larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Bolts, Philadelphia, list. 30 off.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 18 *a* 23c.
Burlap, per yard, 14 *a* 16c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, $1.75 *a* $2; velvet, $2.75 *a* $4; oil-cloth, 45 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $2.50 *a* $3.00, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $15 *a* $22.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.75 *a* $2.
Enameled cloth, muslin, 5-4, 40c.; 6-4, 75c.
Enameled Drills, 48 in., 55c.; 5-4, 50c.
Do. Ducks, 50 in., 75c.; 54, 70c.; 64, 80c.

☞ No quotations for other enameled goods.

Felloe plates, wrought, per lb., all sizes, 20c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.50 *a* $2.00.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.

☞ For a buggy-top two pieces are required, and sometimes three.

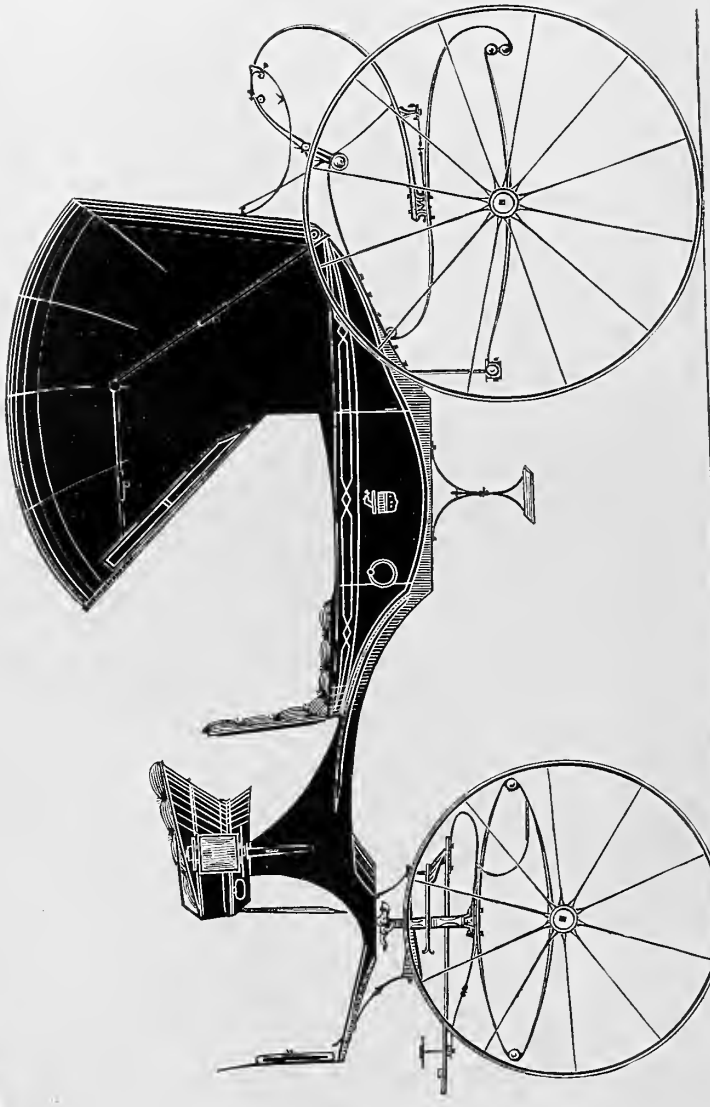
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $1.75.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach, $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 26c.; railing do. 24c.; soft dash, No. 1, 15c.; do., No. 2, 13c.; hard dash, 15c.; split do., 15c.; No. 1, top, 26c.; enameled top, No. 1, 26c., do., No. 2, 24c.; enameled trimming, 24c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates. (See Advertisement.)
Oils, boiled, per gal., $1.25.
Paints. White lead, extra, $13.00, pure, $14.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $6 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Sand paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's 30 per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 16c.; bright, 18c.; English (tempered), 21c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.

☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.

Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.

☞ For extra hickory the charges are 10c. *a* 12½c. each.

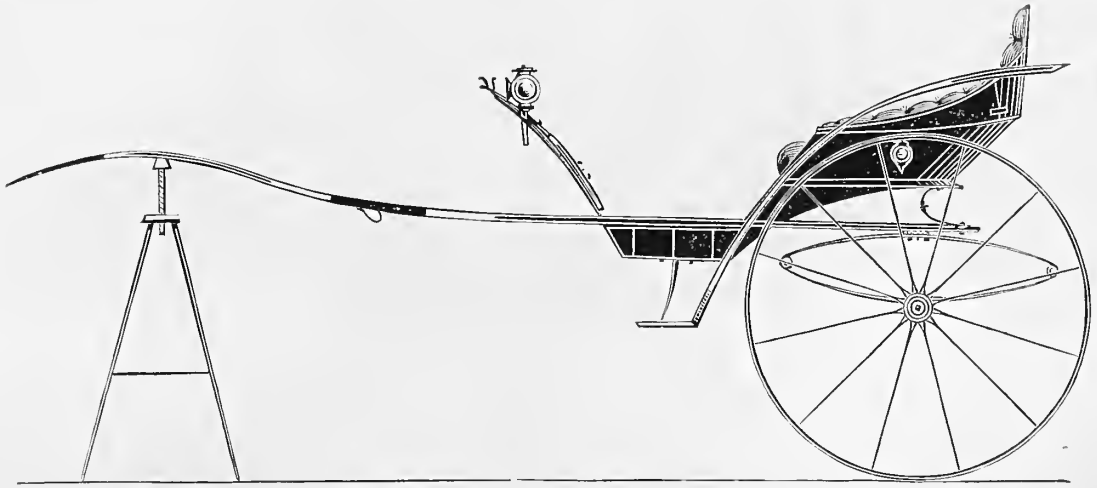
Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 15c.; 1-4 x 1, 15c.; 3-16 x 1 1-8, 16c.; 3-16 x 1, 16c.; 3-16 x 7-8, 17c.; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35, gold.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close-plated nuts and rivets, 75*a*80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2 Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 60c
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.00; nonpareil, $5.25.
Do. English, $6.25 to $7.50 in gold, or equivalent in currency.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Whiffle trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.



C-SPRING CALECHÉ.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 87.



GO-CART.—½ IN. SCALE.

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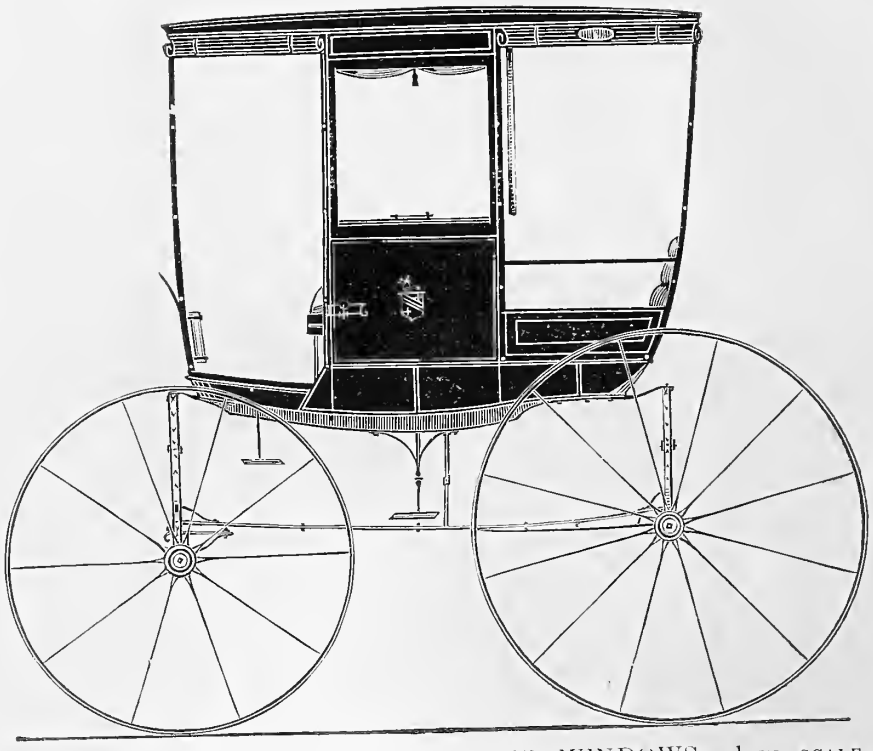
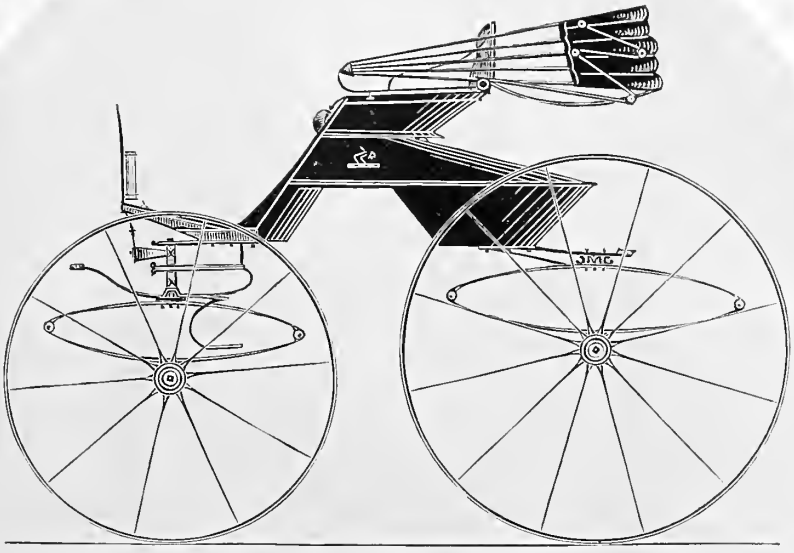
Explained on page 88.



ROCKAWAY WITH HIGH DOORS AND WINDOWS.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

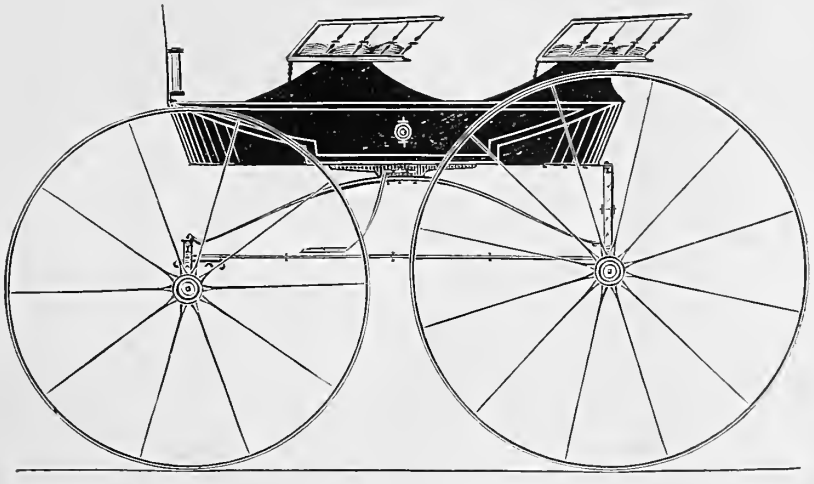
Explained on page 88.



NO-PERCH BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 88.



TWO-SEATED OPEN WAGON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine

Explained on page 88.

THE NEW YORK
Coach-Maker's Magazine

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XI. NEW YORK, NOVEMBER, 1869. No. 6.

Mechanical Literature.

BLOCKING PANELS.

There is no subject more worthy the attention of the craft, than an effectual method for preventing the working of panels in the groove of a paneled job. Having had considerable experience in this class of work, I propose in this article to give the *modus operandi*, not claiming it as original with myself, but having ascertained the utility of the mode by mere accident.

In the winter of 1853 I was called upon to put in two new side sills, and re-panel a twelve-passenger stage-coach, of Concord, New Hampshire. In tearing out the old sills I found them completely rotten where they had lain upon the thorough-braces, but still the panels kept their places in the groove, showing neither paint cracks nor loosening of the panel on the line of the molding at the sill or pillars. Searching for the cause of this, I found that at intervals of one inch there were small corner blocks of pine glued to the inside of the panels, sills, and pillars. Since then I have adopted the plan, and I have never been mortified by seeing my panels work in the groove. I also use the blocks on my quarter panels, after clamping on, wherever practicable, running my canvas or scrim up over the blocks, on to the sills, pillars, and arm-rails. Fellow-bodymakers, you who have not given it a trial, do so, and you will find your bodies more durable.

J. B. P.

TREATISE ON THE WOODWORK OF CARRIAGES.

(*Continued from page* 71.)

CHAPTER FIRST.—PART FIRST.

Representation of Bodies.—XXXVIII. Two different systems are employed in order to represent the bodies: which are the perspective and the geometrical drawing.

The object of the first system is to represent the objects on a surface, in a manner as they would appear in reality, if looked at through a transparent substance. The result of that definition is, that if straight lines are drawn from all the surrounding points and visible edges of the object in view, toward the eye of the spectator, the spot where all those lines would pierce the transparent sheet would produce a drawing on it that would present the same form as the object itself.

Perspective drawing expresses the form of objects, but generally it does not furnish the dimensions nor the size of angles formed by the various component parts respectively. In many cases, therefore, it would not suffice for the reproduction of an object exactly like the one it represents. Therefore we shall merely make use of this system of representation to demonstrate the positions of lines and surfaces on which the problems, already mentioned in the preliminary remarks, are brought to bear.

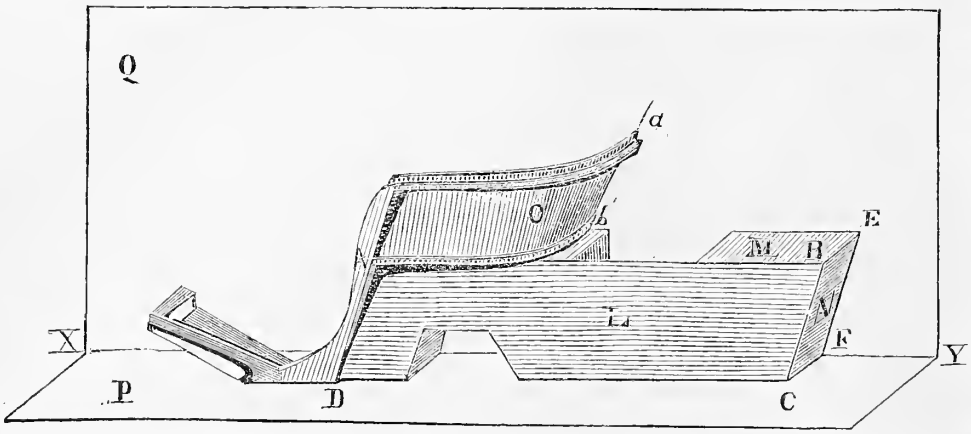
XXXIX. The object of geometrical drawing is to represent objects in such a manner that all their parts are shown in their proper size, or reduced according to the same scale. This system is not so well adapted as the perspective drawing, when it is required to impart a general idea of the form of objects, that is, the form is not so clearly manifested to the eye; but persons familiar with this method can easily deduct the different figures of the plan, the elevation, and the section.

The object to be drawn can exist in reality or not; in the first case, in order to represent it, all the dimensions of the various component parts must be taken, either in their natural size or according to an adopted scale. If the object does not really exist, it is a plan to be conceived, and in this case it is necessary to have a complete idea of it, to foresee the dimensions, the form of all its parts, and the angles formed respectively by the component parts, as if it existed in reality. In either case the aim to be attained is the same; that is, the execution of a geometrical drawing representing the object.

XL. Bodies are distinguished by their apparent faces or surfaces;* the faces are bounded by lines, and the lines are limited by points. Consequently in the body

* The different sides representing the bodies are designated by the term faces, for instance the bottom face, the top face, the side face, the back face, and the front face. Without particular reference in respect to those faces, the word surface is generally used when allusion is made to the covering of any particular part under consideration. For instance, in indicating any particular part of the shell of the} phaeton (Fig. 28), we should first indicate the position of that part, and then the form it assumes. We should, therefore, say that face L of the side is a plane surface bounded by the lines A B, B C, C D, D A. Some parts of the shell, however, cannot be distinguished by their face, such, for instance, as the rounding of a phaeton, the sides of which are not separated from the back. In such cases the term surface is employed, and hence the reason for using the two terms, face and surface.

Fig. 28.



of the phaeton represented in perspective (Fig. 28), we find the face L on the side, the face M underneath, the face N on the back; these different faces are separated respectively by the lines A B, B E, B C, which are their line of intersection or edges, two and two. The top face is not seen on the drawing; but the lines C D, C F, which form the intersection with the faces L and N, sufficiently define its position. The lines A B, B E, B C, C F, C D, are limited at their points of meeting by the points B and C, which are their points of intersection.

The conjunction of several faces or surfaces in one and the same point, forms an angle, that is styled the solid angle. Therefore the point B, the intersection of the lines A B, B C, B E (Fig. 28), is the solid angle of the faces L, M, N. At least three faces or surfaces are necessary to form a solid angle.

From the foregoing, it will be seen that the representation of bodies consists simply in reproducing, on a sheet of paper: 1st, the points situated at the solid angles; 2d, the lines of intersection of surfaces the extremities of which are determined by the solid angles.

XLI. A body can be limited by surfaces of two kinds, planes or curves. The intersection of two surfaces takes place by a straight line (Art. 31). Therefore the faces L, M, N of the phaeton being plane surfaces, their lines of intersection A B, B E, B C, are straight lines. The intersection of a plane surface and a curved surface, or of two curved surfaces, is a curved line, unless the curved surfaces are of that kind upon which a square can be brought to bear in one sense. The intersection would be a straight line if the two surfaces met in such a manner that a square could be applied to each one. For instance, the rounding O of a phaeton (Fig. 28) is bound by a curved surface on which a square can be set, in respect to its height, and the intersection *a b* of that rounding with the plane Q, which we take to be placed vertically on the axis of the body, is a straight line.

XLII. The drawings can be executed either on a sheet of paper, stretched on a plank, on a table, or on a wall. Whatever surface is selected, care must be taken that it is level, in order to secure the greatest precision. This is evidently the reason why the word plan is used to express drawings made in respect to the execution of the objects they represent.

XLIII. The contracted practice of measuring length and breadth by directions parallel to the horizon, and height by the direction of a plumb line, has naturally caused the horizontal and vertical positions to be selected for those of the planes of a geometrical drawing. Besides the horizontal and vertical directions, the planes can occupy certain other positions in relation to the object in view. For instance, the vertical plane can be placed in front, in the middle, or behind the object. It is necessary, however, always to select the most favorable position in order to simplify the operations as much as possible. In carriage woodwork, when the body of a carriage is intended to be represented, it is supposed to be executed and placed on the horizontal plane, and the vertical plane is supposed to pass the axis of the body in its length, so that it divides it in two equal parts.* The body of the phaeton (Fig. 28), the half of which is only apparent, is placed in this hypothesis in relation to the two planes P and Q. The under part of the bottom, being a plane horizontal surface, is wholly included in the horizontal plane P, and all the points appertaining to the axis are situated in the vertical plane Q. All the other points of the body situated beyond the planes P and Q, are considered in space; and are brought to bear on the planes by means of projections.

METHOD OF CONDUCTING PROJECTIONS.

XLIV. The method of conducting projections is composed of planes of projections, projectants, and projections. The object of this method, which forms the basis of descriptive geometry, is:

1st. To represent, on a sheet of drawing paper that has only two dimensions, bodies that have three, and which can be rigorously defined.

2d. To impart the precise form of bodies, and to enable the reduction, by means of graphic operations,† of the dimensions and the proportion of all the respective parts. All the elements recognized in geometry—such as straight lines, curved lines, plane surfaces, curved surfaces—are perfectly determined by their projections on two planes of projection, one of which is generally horizontal, and the other vertical; but in carriage woodwork we have curved lines and curved surfaces, the points of which are not subject to a mathematical rule. In order to give an exact idea of the form of lines and surfaces of that kind, and to fix the position of all their points, a single vertical plane is not sufficient: therefore we have recourse to a second vertical plane.

The appellation plane is particularly applied to the horizontal plane; that of plane of elevation, or simply elevation, to the first vertical plane; and that of auxiliary plane to a second vertical plane perpendicular to the first

* The two sides of the bodies being symetrically alike, by thus placing the vertical plane the half size of all the cross pieces are directly obtained.

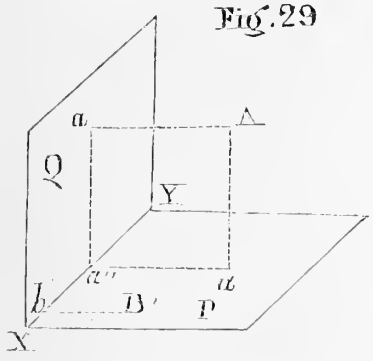
† Two kinds of operations are distinguished in mathematics, for the purpose of solving problems: the numerical, by which means the dimensions are expressed in figures; and the graphic, by which the sizes are expressed by figures drawn upon any surface.

two. The planes of projection and the geometrical planes are the same.

We shall first expose the method of conducting projections from one point in relation to two planes of projection, then to three planes; and in this manner we shall continue in the projection of a straight line, a curve, and plane surface, in order to accustom our readers to consider three planes of projection from the commencement.

XLV. *Projection of a point.* The term of the projection of a point on a plane is styled the foot of the perpendicular drawn from the point on the plane.

Fig. 29

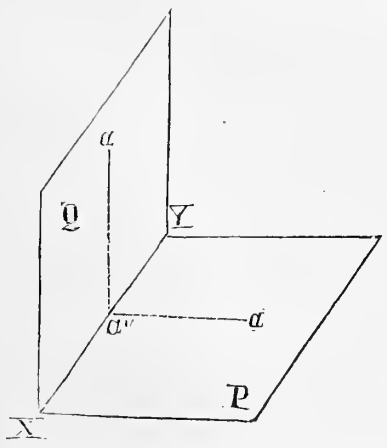


Suppose P and Q (Fig. 29) to be two planes of projection, the first horizontal and the second vertical, A is a point in space: if, from the point A, the perpendicular Aa and Aa' are drawn, the first on to the plane P, and the second on to the plane Q—the lower ends of the lines, a and a', where the lines meet the planes, are the projections of point A; the perpendiculars Aa and Aa' are the projectants of the point; the planes P and Q are the planes of projection. We shall always take the line XY, the line of intersection of the two planes, for the ground line. When this is laid down, if the two projections a and a' are drawn from point A in space, upon two planes of projection P and Q, the position of this point is perfectly determined, because it is on the intersection A of the perpendiculars drawn by the projections a and a' to each plane of projection P and Q.

When but two planes of projection are employed, the two projectants of a point in space are not apparent; they are replaced on each plane of projection by other lines, that are equal and parallel to them as we shall prove.

XLVI. The two projectants Aa, Aa', being perpendicular to the planes P and Q, determine a third plane Aa a' a', which is perpendicular to the first two, and to their common line of intersection (Art. 37). The lines $a\,a''$, $a'\,a''$ of the third plane with the two others are respectively equal and parallel to the projectants Aa', Aa, as forming the four sides of a rectangle. Moreover it can be supposed that the two projectants are transplaced parallel to their primitive position, each one following the direction of the other, so as to bear on the plane of projection to which they are parallel. It then follows that the projectant Aa will bear upon the vertical plane at $a'\,a''$, and the projectant Aa' on the horizontal plane at $a\,a''$. According to this hypothesis, the construction will present itself as in Fig. 30, where the projectants are replaced by straight lines, to which they are equal and parallel in each plane.

Fig 30.



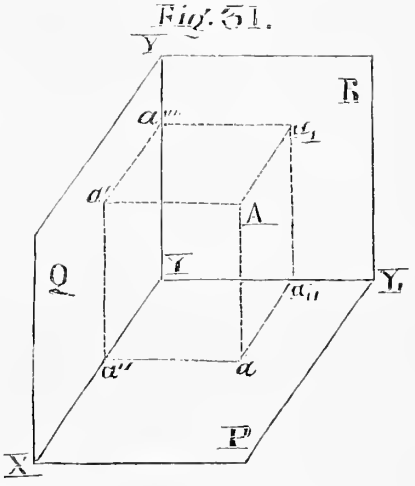
In order to reconstruct, taking the point A in space with the parts given in Fig. 30, it must be supposed that the projectants are removed from their primitive position as in Fig. 29.

XLVII. The two perpendiculars $a\,a''$, $a'\,a''$ lowered from two projections a and a' from a point in space (Fig. 29) on to the ground line, meet that line in a single point a'', because these two perpendiculars are but the outlines of a third plane on the first two, which is determined by the two projectants (Art. 46).

XLVIII. The projection of a point B, taken on one of the two planes of projection, becomes confused with that point in the plane, and projects on the other in a point b' on the ground line.

XLIX. The projection a of a point A in space on to an auxiliary plane R (Fig. 31), is like the other projections, the base a, of a perpendicular Aa, drawn from the point A on to the plane R. The demonstrations that we have made above on the two first planes P and Q are applicable to the first plane P, and to the third plane R.

Fig. 31.



Having the two projections a, a', from a point in space on two planes P and Q, the projection a, on a third plane R, is determined. Accordingly the elevation of the point A above the horizontal plane is determined by its projection a' on the first vertical plane Q. Therefore, if a parallel $a'\,a''$ is drawn through that point to the line of intersection XY, and through the point a''', another indefinite line $a'''\,a$, to the line of intersection XY, the line $a'''\,a$ will form the required projection on the plane R. For the construction, draw a perpendicular $a\,a_{//}$ through the horizontal projection a, in the plane P, at the intersection XY of the two planes P and R, and another $a_{/}\,a$ through the point a to the same intersection in the plane R; the intersection in a, of the two straight lines $a_{//}\,a_{/}$, $a_{//}\,a$, is the required intersection.

The plane R being perpendicular to the two other planes P and Q, the lines $a\,a_{/}$, $a_{//}\,a$, are parallel, the first to XY and the second to YY.

(To be continued.)

An Old Sleigh.—A gentleman in Albany, New York, has a sleigh built in that city in 1816, by James Goold. A friend of the owner used it last January in making his New Year's calls. It is said to be still in good order.

GRECIAN CHARIOT FROM THE FAÇADE OF THE PARTHENON, ATHENS.

OUR GRECIAN CARRIAGE MUSEUM.—III.

OUR next illustration is copied from the façade of the Parthenon, or temple of Minerva, at Athens, showing the crowning of a victor in the chariot races at the celebration of the Olympian games, held once in four years. The remains of Grecian art, as displayed in the originals and on the public monuments, are very meagre. Stuart, among his "Antiquities of Athens," published by John Nichols, London, 1787–1816, has but three plates (Nos. 18, 19, 20) allotted to the chariots from the Parthenon. On the first appears two chariots, in the next another showing preparation for the race, and in a compartment of the third, of which a copy is here given, the crowning of the successful youth. This chariot is roughly designed and coarsely executed in bas-relief, yet is undoubtedly a very fair representation of the fashions in that day. It is worthy of notice that Grecian chariots may generally be distinguished from all others by a projecting circular rave forming the hinder portion of the body.

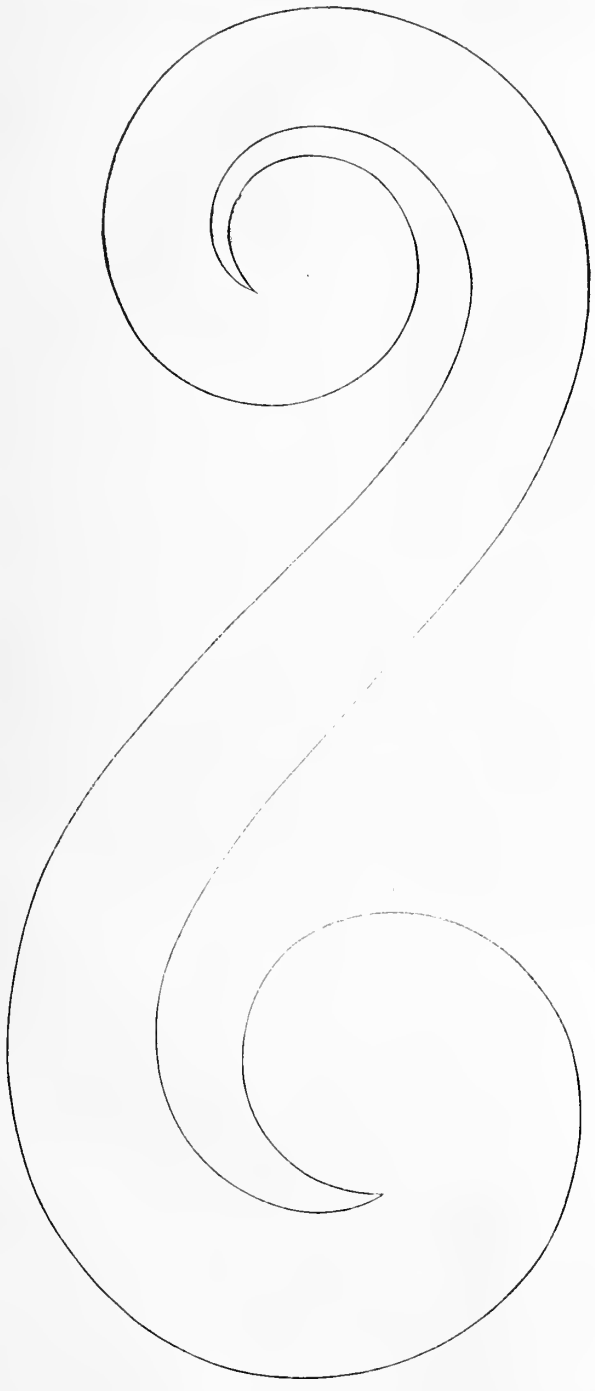
To become a victor in the chariot races, among the Grecians, was to obtain a position of distinguished honor. The rewards were of several kinds, either wild olive, pine, parsley, or laurel, according to the different places where the games were celebrated. These made into crowns were set upon the victor's head, and palms placed in the right hand amid the acclamations of the spectators. Plutarch says the custom of presenting palms on such occasions arose from the nature of the palm-tree, which displays new vigor the more endeavors are used to crush or bend it, and is a symbol of the champion's courage and resistance in the attainment of the prize. As he might be victor more than once in the same games, and sometimes on the same day, he might also receive several crowns and palms, as the reward.

When the victor had been crowned, a herald, preceded by a trumpeter, conducted him through the stadium, and proclaimed aloud the name and country of the successful champion, who passed in that kind of review before the people, while they redoubled their acclamations and applauses at the sight of him. When the victor returned to his own country the people came out in a body to meet him, conducting him into the city, adorned with all the marks of his victory, and riding in a chariot drawn by four horses. His entrance was not in the common way through the gates, but through a breach purposely made in the walls. Lighted torches were borne before him, and a numerous train followed to do him honor. The triumphal entrance into the city concluded by a feast for the victor, his relations and friends, at either the expense of the public or some particular persons. Sometimes the spectators were included among the invited guests. Alcibiades who had won a victory in these races after a sacrifice to the Olympian Jupiter, treated the entire assembly. Leophron did the same, as well as Empedocles. This last individual caused an ox to be made of paste composed of myrrh, incense, and all sorts of spices, and gave a piece to every one present.

One of the first steps taken by the magistrates after the games were over was to inscribe the name and country of the victor in the public register. The chariot race had the preference over all other games. Thucydides, Dionysius, Diodorus, and Pausanias date occurrences by Olympiads, generally expressing the Olympiad by the name and country of the victors in the chariot race.

SWEEPS FOR SCALE DRAFTING.—VII.

With this monthly issue, we present our readers with another pattern for sweeps, the seventh in the series. Like



SWEEP FOR SCALE DRAFTING.

the others, this too may be traced on a thin rosewood veneer, and cut out with a penknife to the proper shape. Instructions for finishing will be found on page 5 of this volume.

Home Circle.

THE MUSIC OF THE LEAVES.

BY A. A. HOPKINS.

When April, smiling o'er the hills,
Is touching with her fairy fingers
The frozen ripples of the rills
Where Winter lingers,
There comes afar the rustling low
Of May's green garments—shy new comer—
And soon we hear the gentle flow
Of songs of Summer!

They breathe in every tree-top, then;
In every shrub and bush they whisper;
And each young leaf becomes to men
A tender lisper.
It tells some tale to every ear,
Though few, perchance, will heed the telling;
Its song through all its short life here
Is sweetly swelling.

In sunlight, when the fluttering things
So brightly flash and gleam and quiver,
A song as gayly glad it sings
As greets the Giver;
When clouds across the blue sky sweep,
And darkly, damply lower o'er us,
The leaves a miserere weep
In sad'ning chorus!

Beside my casement long I sit,
When in the light they gleam and glisten,
And as the Summer moments flit
Entranced I listen.
Their murmurous music on the air
A strangely subtle spell is weaving,
And all the earth is good and fair
To my believing!

But when they weep their pearly tears,
And sigh a mournful miserere,
No shining sun my being cheers,
And all is dreary.
My heart takes up their mournful song,
And heart and leaves sigh on together,
But look, through all the showers long,
For sunny weather!

There comes a sadder season still,
When crisp and dry, and slowly falling,
Their rustling chant so sad and shrill
Is to me calling.
A sadder season; yet I know
The song will change its cadence sober,
There hides a June beneath the snow
Beyond October!

BY COACH TO BRIGHTON.

Ye lovers of the Picturesque, approach!
To Brighton you can now go down by coach;
Ye hippie men, who love the whip-thong's crack,
A four-in-hand now takes you there and back.
Not in a railway carriage, but outside
A coach, by leave of weather, let me ride,
For riding's sake, with time at my command,
To gaze about upon a lovely land
That was, and so still, here and there remains,
Where smoky progress may have spared the plains.
Waft me the breath of flowers, ye gentle gales,
And not such whiffs as firebox, stoked, exhales;
Delightful change, woods, fields, and meadows fair,
From hideous porter in your face that flare,

Free of those horrors when the vision roves:
Nor yet that puffing commerce killed the groves.
Returns, in thought, the old Saturnian reign,
And George the Fourth his wig assumes again.
Then the weird music of the vanished past
Blends with the coach-horn's old remembered blast,
And spirits, while the horses changing are,
Appear, as fellows light the mild cigar. *Punch.*

WINTER RAMBLINGS IN KENTUCKY.

BY PORTE PENCIL.

(*Continued from page* 73.)

MUD deep and soft; trees fallen and lying latitudinally; streams swollen and turbid, *within* high banks, and *without* bridges; roads leading through swamps, and wildernesses filled with uneven causeways, and bristling with incorrigible stumps; dwellings far between; sleet, snow, darkness, and wild animals, rather familiar; business imperative, and the journey long; such were the characteristics of my *rambles* from Mason's Ferry to Russelville. The catalogue could not be more complex were it the voyage from the Cape of Good Hope to the Isthmus of Suez. The patience requisite to the completion of the journey would tax the patience of Job; the long-suffering finds a parallel in the adventures of Admiral Byron; the perseverance used was not unworthy a Columbus. Under such circumstances commend me to "horseback," and let the creature have a sure foot, a strong leg, and a good mind. I find that the safest, easiest, and cheapest way of traveling. But deliver me from *mules* and *oxen*. Moreover, let wayfarers be fortified with common sense, practical philosophy, and good humor. They will then only be fit to go a journeying, especially *such* a journeying as I underwent.

Bowling Green is the county town of Barren County, and is quite a respectable place. There are several churches, a bank, a *hotel*, but another is needed badly. To-day offers superior inducements to the farmers to visit the city, in that it is county court day; and furnishes rare chances for settling "little bills," and meeting brother farmers and talking over farm and crop prospects. Horseflesh is by no means a rarity on such occasions, and with the large amount generally offered for sale, another avenue of trade is opened for the honest yeomanry. All day long the streets present something of the appearance of those in a busy metropolis, and many may be seen rushing hither and thither in their eager endeavors to obtain bargains, while others are seemingly reflecting over their losses or chuckling over their gains. The inhabitants are principally engaged in the tobacco and hemp trade; but if these were exhausted, Bowling Green would hardly sustain itself. As for the other towns through which I passed, I found it difficult to ascertain their *locus in quo*. For instance, I inquired of a damsel one day, while yet I supposed I was far off in the wilderness, the distance to Hartford. "Why, la!" she replied, "they tell *me* this is Hartford." I find the following in my note-book: *Mem.* —No church—wonder if people ever attend church in these parts? Hotel eight by ten—man fiddling—children dancing—pigs squealing—dogs howling, and all the neighbors looking on! Whenever you see pig pens built in front of the dwelling-houses, you may rely upon it you are in the State of Kentucky, unless you *know* that you are in some other State. You may easily distinguish along the road the habitations of the European emigrant. There is an air of neatness, order, and cottage comfort about them seldom observed in those of the natives. This difference is caused in part by the plantations being formerly under the control of an overseer and cultivated by negroes, causing the owners to become careless of their own interest as far as adornment is concerned. I do not say that this is a general thing by any means, for there are many well-kept farms and plantations in this State. Some I have noticed may be considered a perfect Paradise. Their dwellings, however humble, are tidy and warm; vines are planted at the door and under the window, and a neat little door yard is inclosed in front by a picket fence. The outhouses and fences are in good condition, and no more soil seems to be under cultivation than can be managed well. Labor and improvements attach the proprietor to the place, and all about him appear settled, contented, and happy. It is different with the American emigrant. His mind is unsettled—he provides for the present, but he is always on the *qui vive* for fresh adventures and speculations. Everything seems unsettled. His mind is distracted with innumerable projects for gratifying an overruling passion to make money. He seldom forms a permanent attachment for a "local habitation," but is always ready for a new start at a moment's warning.

Rockfield is a very good-looking place, built mostly of brick, around a spacious open square, and is rapidly increasing in population and importance. I reached Rockfield in a notable snow and hail storm—it was a cold and violent northeaster. Pursuing my course the next day along the ridge road, I was joined by a "corncracker,"* who proposed to be my companion. "How far do you allow to rush ahead in a day?" he inquired. I replied, "About forty miles. Can you go that?" "I reckon," he rejoined. I was struck with the apparent fertility of the soil and luxuriance of vegetation in the vicinity of Shakertown. "That man has a heap of corn, I reckon," observed my companion as we surveyed a field of stubble. "Remarkably high stalks—ten to fifteen feet!" I exclaimed. "It's no great shakes after all. Down South I've seen farmers blade their corn and lop the ears, and then turn their cattle in. The ears would be too high for their reach." "Then I suppose they have to employ ladders in order to gather it?" "I reckon."

Shakertown is one of those magical places of the wonderful West. It has grown up within a few years to be an important town. Its population are all young, active, intelligent, and enterprising, and are very rapidly increasing in wealth and numbers. The plan of the town is very judiciously designed, and is calculated to render it one of the most beautiful places in the State. It would seem like an act of supererogation to describe their manners and mode of living, as it has been *done* before.

Rambling up to a log tavern at Rockport, at seven o'clock in the morning, our curiosity was somewhat excited by a crowd at the door. I had no sooner entered the threshold than my companion had disappeared. I followed an irresistible current that carried me upward, and discovered the secret of all this business. On the second floor a dancing party had collected the day before,

* A native of Kentucky is called a "Corncracker;" of Ohio, a "Buckeye;" of Indiana, a "Hoosier;" of Michigan, a "Wolverine;" and of Missouri, "Pewk."

at two o'clock P. M., and had continued the sport all night. My companion was already on the floor, leading down a double-shuffle, with his coat off, his cravat thrown aside, and his shirt collar unbuttoned. I observed the minuet, the pirouette, the gallopade, the reel, the contra dance, cotillion, cheat, hipsey saw, shuffle, and a variety of other indescribable steps, all in full exercise at the same time and to the same tune! The sport was too good for my companion to care about resisting it. Nothing could entice him from it—he "went it with a looseness" *con amore*, and I was obliged to "rush ahead" without him.

The road between Shakertown and Russelville in the cold season of the year is of the most execrable character. I witnessed the wreck of two stage coaches within a few miles distance. A *roue* bachelor was jolted over the hind axle until his nose bled, and he seemed rejoiced when the coach upset at an opportunity to escape. I saw him crawling out of the upper part of the door; and the last glimpse I had of him he was struggling on all fours, and up to his elbows in mud. The native ladies of this section never go out without high boots. When called upon to relieve the team by walking, therefore, they draw up their petticoats, leap into the mud, and travel on with impunity.

I stopped for a few moments to observe the dwelling of a thrifty farmer. It was situated in the edge of a forest, in a quiet, sunny spot, built of square timbers, nicely jointed, and all the crevices filled with plaster. Everything wore an air of convenience, comfort, and content. The inclosures were well regulated, the outhouses snug and well built, and the fences strong and in good condition. All the fields under cultivation were fenced in. In the center of a large field of one hundred acres and upward I perceived several immense circular stacks of wheat, in the midst of which three or four men and two horses were at work threshing by the aid of a patent threshing machine. They were getting out wheat at the rate of about one hundred and twenty-five bushels in a day. These machines are of vast importance to the producers of grain, and an immense saving of labor.

This farmer, so different from many others in this State, was reaping the grateful rewards of industry, temperance, and undivided attention to the one business he professed to pursue. Let others profit by the example, and Kentucky will be a bed of roses.

W—— is a justice of the peace, and was compelled to leave us to-day, in order to attend the session of the county court. I took his dog and gun to see what sport his fields afforded, and after a walk of some hours, feeling inclined to rest, I seated myself on the body of a fallen tree, and had been there but a few minutes when my attention was attracted by the following conversation carried on behind a dead hedge, by which I was screened from the view of the parties engaged in it:

"I say, Tom, is you been do what you say?"

"I done fo'git what 'twas."

"Dah, now! didn't I tell you futto ax Ned futto len' me his possum dog to-night?"

"Well, sho 'nough!"

"Well now, what I gwine do fo' dog?"

"You do' wan' no dog to-night."

"What fur I don't?"

"Caze you gwine to cawn shuckin."

"No indeed; I gwine to catch possum for Jenny."

"What business you keep runnin' a'ter Jenny? She eat all yo' whole crap of 'taters, an' wat'millons, an' mush-millons, all yo' possum, an' all yo' moonac (raccoon), let alone the calikers an' necklace, an' things yo' buy fo' her; an' den she ain' gwine have you a'ter all."

"How yo' know dat?"

"Caze can't I see? An' didn't my wife hear Washington ax the gal, an' she say yes?"

"Well now ain't dat *too* bad! 'Tain' no mo' 'an last Sunday, when I sole my har skins, I give her a yaller hankcher!"

"Ah, boy! I tell you what, Jenny's a knowin' gal; she wan't born 'istiddy, so you moustle let her 'lone."

Having satisfied myself that no condition of life was too humble for the spirit of coquetry to flourish in, I here interrupted the conversation by desiring to be shown the way to the nearest spring.

"Yes, master, I show you," was the prompt reply of one of them, lifting his hat at the same time. "The quarters is roun' de pint of them woods thar." And in three minutes the "quarters" presented themselves in the shape of some six or eight log buildings situated in a row, and about twenty or thirty feet from each other, all fronting one way. In the rear of each was a little garden, inclosed by upright stakes interwoven with cedar boughs. Outside of each door a small shelf was fixed to the wall, supporting a pail of water and a gourd used for a drinking-cup. The character of the ground was such that we could not be seen, neither could we see, until the moment of our arrival, at which time there were twenty or thirty little woolly heads amusing themselves. Some were running about, some swinging upon the gigantic grape-vines with which the trees were covered, some rolling about on the ground, while others were engaged in doing nothing. In an instant six curiously shaped curs rushed out from door and bush. Some wanted ears, others tails. The latter had been either cut off or driven in, so that there was hardly an inch protruded. But none wanted voice. They all had it, and to spare, and *spare* it they did very freely.

(*To be continued.*)

Pen Illustrations of the Drafts.

C-SPRING CALECHÉ.

Illustrated on Plate XXI.

This caleche, as will be observed, has some new points of interest in the mode of hanging-off, rendering it not only more safe than when constructed on the old plan, but likewise much easier riding. The width of the body between the arm-rails should be 50 inches; width of the boot, 30 inches. *Wheels*, 3 ft. $\frac{1}{4}$ inch and 4 ft. 2 inches high; hubs, $4\frac{1}{4}$ by 7 inches; spokes, $1\frac{1}{8}$ inches; rims, $1\frac{1}{4}$ inches deep; tires steel, $\frac{3}{8}$ by 1 inch. *Springs*, front 3 feet long, and about 10 inches apart; width of steel, $1\frac{3}{4}$ inches, No. 3 head leaf, and No. 4 remaining three plates; C and platform springs, say 40 inches long, $2\frac{1}{2}$ inches wide, No. 2 steel. *Painting*, carriage-part straw color, striped with broad line of blue, edged with two fine lines of lighter blue, and centered with fine line of gold; body very dark blue, striped with a lighter shade of blue in fine line,

and another in gold. Price of carriage from $1,200 to $1,300.

CHARGES FOR REPAIRS.—New tires and bolts, $34; resetting tires, $8; tire bolts, 12 cents; drafting wheels, $1; new hub, $5; spokes, 75 cents; set rims, $20; carriage bolts, 30 cents; new pole and leathering, $6; new pole yoke complete, $6; back panel, painted and trimmed, $40; new axle nut, $2.

GO-CART.

Illustrated on Plate XXII.

VERY little need be said in explanation of this design, the drawing itself being its own interpreter. The side panels and back may be made out of three-quarter inch cherry, and molded, the sinking being likewise cut out of three-quarter inch ash. The lines shown on the sunken-bottom should be painted. A plate will be required to strengthen the insides of the rockers. Paint the body panels brown and the rockers black, the wheels and under-carriage being also black. Wheels, 3 feet 8 inches. Price about $200.

CHARGES FOR REPAIRS.—New tires and bolts, $14; resetting tires, $4; tire bolts, 10 cents each; drafting wheels, 50 cents; new hub, $5; new spokes (each), 75 cents; rims for two wheels, $9; resetting axle, $4; new shaft, $5; new shaft-bar $3.50; shaft-tips, $2 per pair; retrimming shafts, $6; repainting, $35.

ROCKAWAY WITH HIGH DOOR AND WINDOWS.

Illustrated on Plate XXIII.

THIS original design for a high-door Rockaway is accommodated to both summer and winter use. The novelty consists chiefly in the combination of the coupé with the wagon front. The side panel is molded as shown in the drawing. Wheels, 3 feet 8 inches and 4 feet 2 inches high; hubs, $4\frac{1}{4}$ by 7 inches; spokes, $1\frac{1}{8}$ inches; felloes, $1\frac{1}{4}$ inches; tires, $1\frac{1}{8}$ by $\frac{5}{16}$. Painting, patent-black; striping, three narrow stripes, two red, the center being straw color. Trimming, blue cloth. Price of Rockaway, $700.

CHARGES FOR REPAIRS.—New tires and bolts, $26; resetting old tires, $7; tire bolts, 10 cents; drafting wheels, 75 cents; new hub, $5; spoke, 75 cents; rims, $16; new axle-bed, $3.50; new perch, $4.50; new spring-bar, $2; new shaft-bar, $1.75; new shaft, $4; retrimming shafts, $4.25; pair shaft-tips, $2; new pole, $6; head-block, $3; new set of wheels complete, $75; new leather washers, $1.25; resetting axles, $6; recovering glass frames, $3.50; burning off old paint and repainting, $100; coloring and varnishing body and carriage-part, striping, &c., $75.

NO-PERCH BUGGY.

Illustrated on Plate XXIV.

THIS buggy—paneled of course—has a molding running horizontally across the side, as seen in the drawing. The body, having a deep cut-under, will need a very stout plate on the inside sill, to fit it for standing the strain it will be subjected to in the absence of a perch. Indeed, a body built after this design must be well made in every respect, and even after this is accomplished it will still be a comparatively weak affair. If a customer *must* have a buggy of this kind, the best way when taking the order is to candidly apprise him of its defects, and thereby fortify your own reputation against future complaints should it give out. Wheels, 3 feet 5 inches and 4 feet high; hubs, 4 by 7 inches; spokes, 1 inch; rims, $1\frac{1}{8}$ inches; tires, steel $\frac{3}{8}$ by 1 inch. Paint all patent black, and stripe three fine lines; center line straw color, two outside lines crimson. This buggy being often used for business purposes, when so used should invariably have dark-colored linings. Price of buggy, $475.

CHARGES FOR REPAIRING.—New set of wheels complete, $80; new hub, $5; spokes, 75 cents; rims, $16; drafting wheels, 75 cents; resetting tires, $6; new set iron tires and bolts, $20; tire bolts (each), 10 cents; carriage bolts, 25 cents; new shaft, $4; leathering do., $4.25; new shaft-bar, $2; new bed to front springs, $5; new bolster, $5.50; new cross-bar (curved) to hind springs, $6; new spring, $10; new fifth-wheel, $5; new top complete, $1.25; new cloth body linings, $25; new bow in top, $6; repainting complete, $50; touching up body and varnishing all, $35; cleaning top and oiling, $2.25; new whip socket, including fastenings, $3.

TWO-SEATED OPEN WAGON.

Illustrated on Plate XXIV.

THIS shifting-seated wagon will be found very useful in going to market or to the railroad depot, being alike adapted to either business or pleasure by a new arrangement of the springs—the one elliptic, the others half-springs. Two leather cushions, with the falls attached, so as to be removed from the vehicle at pleasure, and an oil-cloth for the bottom, including dash and whip-socket, comprise about all the trimmings required in this job. Wheels, 3 feet 9 inches and 4 feet; hubs, $3\frac{1}{2}$ by $6\frac{1}{4}$ inches; spokes, 1 inch; rims, $1\frac{1}{4}$ inches; tire, steel, $\frac{3}{16}$ by 1 inch. Price, $475 to $500.

Charges for repairs to under-carriage about the same as for the "No-perch Buggy," preceding.

NOTE.—We have added a new feature to this department by giving some of the charges for repairing the different carriages, in New York. We hope they may prove useful to some of our country friends, and not without interest to city readers.

Sparks from the Anvil.

TRACK OF CARRIAGES.

A FIRM in Harrisburg, Pa., writes: "The question of the proper width of track for carriages has been raised with parties for whom we are doing some work. You we consider authority on this subject, and would be obliged if you would satisfy us in regard to this matter. We want Pennsylvania and New Jersey track."

We published a table in September, 1862 (see vol. iv., p. 182), giving the width of track in different States, the result of inquiries made through THE NEW YORK COACH-MAKER'S MAGAZINE. The track for New Jersey was five feet, and we have always understood that for Pennsylvania to be the same. If we have been misinformed, perhaps some of our friends in the Keystone State will set us right on that point.

Some correspondents have expressed a desire for a uniform track throughout the United States. Such certainly ought to be the case, but we fear that State laws and local customs are so strong against us, that such a consummation—however desirable—is far off in the distance. A uniform track would save the craft thousands of dollars annually, in the costs of alterations conformable with different locations, to suit certain customers.

STIFFENING BEDS, WHIFFLE-TREES, &c.

A CARRIAGE manufacturer—J. B. Brewster, of Twenty-fifth street, N. Y.—has invented a new mode of stiffening the beds and whiffle-trees of light carriages, so as to prevent warping. His plan is to plow a groove about one-quarter of an inch wide and one-half inch deep the entire length of the bed, so as to be hidden when the axle-tree is attached. In this groove he inserts edgewise a strip of homogeneous or other steel, which being of a springy as well as rigid nature, is supposed to serve as an agent in keeping the wood in its proper position as long as the carriage will wear. The same process is applied to whiffle-trees from the under side, over which a strip of wood is inserted to keep the steel in its place or through the whiffle-tree horizontally. Mr. Brewster claims that his combination gives twice the usual strength, obviating the springing of the axle, and rendering bars, pole-yokes, &c., secure beyond the contingency of breakage. We understand that the invention has been patented.

GLUE WHICH WILL UNITE STEEL.—The following is a Turkish receipt for a cement used to fasten diamonds and other precious stones to metallic surfaces, and which is said to be capable of strongly uniting surfaces of polished steel, even when exposed to moisture. It is as follows: Dissolve five or six bits of gum mastic, each the size of a large pear, in as much spirit of wine as will suffice to render it liquid. In another vessel dissolve in brandy as much isinglass, previously softened in water, as will make a two-ounce phial of strong glue, adding two small bits of gum ammoniac, which must be rubbed until dissolved. Keep the article in a closely-corked phial. When it is to be used, set the phial in boiling water.

MAKING RIVETS HOLD.

THE *Ohio Farmer* says: "Farmers and mechanics are very often bothered by the breaking or slipping of rivets in machinery and other places, and do not know a remedy. The trouble usually arises from the rivet-hole being too sharp upon the edge, and from the rivet-head being too flat upon the under side. The most of the heading tools used by blacksmiths in rivet-making are rounded on the surface, so that the heads are left concave. This brings the outer edge of the head upon the surface to which it is to be drawn, and the rivet has a chance, when brought to a heavy strain, to extend, which prevents breaking.

"The rivet is usually made of softer iron than that upon which it is to be clutched; consequently, if the edge of the rivet-hole is left sharp, when a strain of tension comes the soft iron is cut away by the harder edge, and the work loosened.

"Counter-sinking the hole upon the surface is the only remedy to be used in the last case spoken of, and but little of that need be done; a common counter-sink, which may be bought at any hardware store for ten cents, and used in a bit-stock, is all that is required by way of tools. Rivets subject to a shearing or side-way strain, do not require this caution, as they only need heading enough to keep the work in place.

"The force necessary to tear a piece of iron is very near that of cutting or shearing the same, so that the strength of rivets may be very easily estimated when used in different parts of machinery.

"The pressed or 'sale rivets' are not as good as those made at the anvil; at least, we have never been able to find any equal to the home-made, and would, therefore, advise that where iron work is to be put together, or wood upon iron is to be secured in safety, that the workman go to some good blacksmith, and have your rivets made of tough, soft iron, such as nail-rod or Swedes iron; and see, too, that they are made as they should be."

IRON MANUFACTURES IN NEW YORK CITY—PAST AND PRESENT.

TWELVE years ago there were, in the city of New York, the following great iron-works: Allaire Works, employing 700 hands; Etna Works, employing 600 hands; Morgan Works, employing 700 hands; Neptune Works, employing 500 hands; Novelty Works, employing 800 hands; Delamater Works, employing 800 hands. These six great works employed 3,800 hands.

To-day, the following is the melancholy exhibit: The Allaire Works is a *car stable*; Etna belongs to Mr. Roach, and is closed; Neptune, sold to Mr. Roach, "shut up;" Novelty makes house castings, but no engines; Delamater makes Cuban gunboats, and employs, at present, 500 men; the Morgan Works employ 450 men. Total, 950.

Thus the 3,800 workingmen who made the river banks glad with their noisy work have dwindled down to 950; and if the gunboat business ceases, not 600 will be employed in manufacturing engines or machinery. The 3,800 men who were employed in these works before the monopoly earned about $2,000,000 gold annually, or an average of $10 a week. The 950 that are at work earn now, on an average, $15 a week, and their yearly earnings together amount only to $741,000 currency.

Twelve years ago the Neptune Iron Works, which are now shut up, were employed chiefly in building marine

engines, which were exported to China. The boats were built there, but as the Chinese preferred the so-called beam-engines for their steamboats, and as Americans are adepts in building these marine engines, they were exclusively made here. Now not only are the Neptune Works shut up, but *not one* marine engine is made here for export. The orders for this kind of work, as well as for sugar-mills or any other skilled labor machinery, go entirely either to Scotland or Belgium, or even to France.—*N. Y. World.*

THE MANUFACTURE OF STEEL.

THE Paris *Presse* says: "An experiment of a most interesting character, and having the highest interest for the iron industry, has taken place at the Marquise Stock Works, in presence of two eminent persons of the Ecole Centrale. The object of this experiment was to make steel by one operation, a problem which has engaged all metallurgists, and if solved, would cause an industrial revolution. M. Aristide Berard, an engineer whose name is familiar to all who have occupied themselves with this question, proposed to change second-class metal in course of refining into steel of at least ordinary quality, by means of a process alternately oxidizing and reductive. His efforts have been crowned with success. The product obtained by his process, in presence of two competent judges, proved to be steel of good quality, suitable for all purposes, and made with the facility necessary to its application to practical industry. The operation was effected in a reverbatory furnace, lasted about an hour and a half, and was accomplished with as much facility as puddling. In this process, instead of acting on 480 pounds of metal to obtain iron of number one quality, from 6,600 to 11,000 pounds of metal are made by only one operation into steel ingots ready for the workshop, and with an unexpected economy. We will be much deceived if this invention has not in it the germ of a complete revolution in metallurgy."

Paint Room.

CRAWLING OF VARNISH.

THE crawling of varnish is a subject on which much has been published in the NEW YORK COACH-MAKER'S MAGAZINE during the past ten years, and now we find it agitated in some cotemporary journals. It is evident that a discussion of this subject has been of incalculable benefit to the public, but notwithstanding this, much still remains to be said before the work is complete. Circumstances under which the work of varnishing is done, and the different opinions workmen entertain as to the true cause why varnish crawls, place difficulties in the way of a definite solution of the question which render it almost hopeless. Anxious to do all we possibly can toward aiding the public and overcoming this much-dreaded operation, we have selected for publication a portion of an article lately given in *The Hub:*

"'Crawling' is caused by the gloss of the coat beneath it, which does not form proper footing, as is shown by the fact, that just so soon as this gloss is removed, there is no further trouble found. 'Crawling' is therefore not a serious trouble, for it may be easily prevented by washing the under coat with water and wiping with wash-leather, as this will destroy the brilliance of the gloss, and, in many cases, the mere dusting with a stiff duster will be found sufficient. When a previous coat 'crawls,' I have found that the following coat is generally more apt to do so, and in cold weather there is more liability of this trouble than in summer, for then the gloss of the under coat seems to come up to a 'harder sharp.' *But kill the gloss of the under coat, and you kill 'crawling.'*"

IMPROVEMENT IN WHITE-LEAD.

WHITE-LEAD has been, until quite recently, and is to this day, manufactured in most establishments where the "English process" is followed in the manner we here describe:

"Oxyd of lead, or litharge, obtained by the calcination of lead in a reverberatory furnace, is moistened with a solution containing one per cent. of sugar-of-lead. This product is placed in closed troughs, which communicate with each other, through which a current of carbonic acid gas, developed by the combustion of coke, is made to circulate. This gas, after passing through pipes immersed in cold water, is forced through the litharge by the action of rotary fans, while the mixture is being constantly stirred by means of rakes put into motion by steam power.

"The white-lead obtained by this process is deficient in softness and in covering qualities, containing, as has been recently shown by Prof. Artus, too large a proportion of hydrated oxyd of lead.

"By moistening 100 parts of the litharge with a solution containing 2½ per cent. of neutral acetate of lead, and adding a small proportion of acetic acid, these defects can be radically corrected, and a very superior article obtained, remarkable alike for its tenderness, whiteness, and adhering qualities."

CHARACTERISTICS OF GOOD VARNISH.

MOST liquids give more or less of a varnish effect—that is, they give a shining appearance to the surface upon which they are placed. Thus, when water is poured upon a deal table, it brings out the grain of the wood, and brightens the place it occupies; but water dries, and the brilliancy is only momentary, consequently water is not a varnish, so called. A solution of strong glue gives all the desired solidity, but having no brilliancy, it cannot be called a varnish.

There are many points to which the varnish manufacturers must direct careful attention, and which the customer must understand, in order to judge of the merits of an article. Varnish should be a clear, limpid fluid, before application, and after being applied should become solid, and have a brilliancy which reflects and refracts the rays of light like a fragment of crystal. It is as a fluid what glass is as a solid. It heightens the tone of colors and preserves them, it brings out the delicacy of outlines and of shading, and time should neither color nor dim it. It is necessary that it should so adhere to glass, wood, or stone, that it may not be removed by anything short of an iron instrument, or by the action of fire. It must also be strong drying, and when dry and hard should become firm and unalterable in character, so that it shall neither crack, nor

turn white, nor be affected by light or ordinary heat, nor removed by any ordinary solvent.

In other words, the qualities to be considered, in testing a varnish, are as follows:

1st. Its Paleness—an important feature for some classes of work, and the one which is generally first looked to.

2d. Its Fluency. Upon this depends the working quality. It also has much to do with determining the real value of the article, as it governs the amount of surface which a gallon will cover.

3d. Time of Drying. This is essential, because it affords a speedy protection from atmospheric changes, insects, etc., and dispenses with the inconveniences of housing newly-varnished work for a long time.

4th. Time of Hardening. This feature is entirely independent of the foregoing. A varnish is *dry* when its surface is sufficiently tough to resist dust, insects, and currents of air, and after *hardening* it is solid.

5th. Fullness. This is often expressed by painters as "staying where put." If a varnish continues to look bright and to stand out prominently after drying and hardening, we say it has *fullness*. Otherwise it will look thin and "saddened."

6th. Brilliancy. Next to durability, this is the most important qualification of a varnish.

7th. Durability. This is the principal consideration, and in examining the merits of a varnish, the consumer should direct careful attention to this point. It includes the quality of elasticity, which will prevent cracking and scaling, and the quality of resisting the corrosive action of the atmosphere and of moisture. It is the most difficult feature to decide upon, for it is simply a question of time, whereas the six conditions which precede may be fully tested by a few trials.

Having defined the seven qualifications which are requisite to the perfect coach varnish, we will add in the way of caution, that while testing a varnish, the purpose for which it is required must be held constantly in mind, and especial heed should be given to those features which will best qualify it for the class of work in question.—*The Hub.*

PAINT SKINS.

Color of Vermilion.—It is well known among artists, that the splendid bright color of vermilion has a tendency, when mixed with white-lead, to assume a blackish-brown color in a very short time after being spread. This tendency, it is said, may be checked if previous to mixing it with oil it is thoroughly permeated with about one-eighth of flowers of sulphur.

To remove Old Putty.—Dip a small brush in nitric or muriatic acid, and with it saturate the dry putty that adheres to the broken glass and frames of carriage windows; after an interval, the putty will have become so soft as to be easily removed.

Improving Vermilion.—It is said that a little ultramarine blue added to vermilion will deepen and improve the color of the latter.

Japan Gold Size—is very extensively used among our first-class painters, mixed in with both rough-stuffs and colors, and is much superior to the old-fashioned japan.

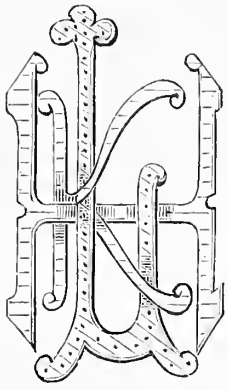
Another Jewish Trick.—A few days ago we called upon an old friend in Connecticut, who was loud in his complaints against a varnish manufacturer in this city whose agent he had engaged to fill an order. He ordered five gallons only; but was "stuck" with ten. This is not the only instance where we have heard of the same practice, from the same firm. If you *will* buy of these "sheep" merchants, give your orders in writing, and refuse to pay for all amounts sent exceeding the order.

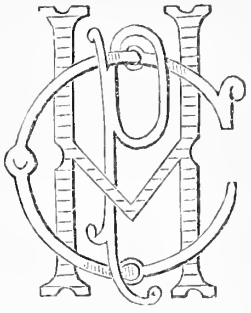
ORIGINAL MONOGRAMS.

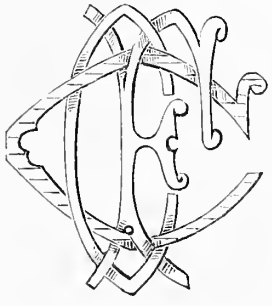
A gentleman of this city has furnished us with the following original designs for monograms. We hope they may prove useful to some of our readers.

The first, comprises the letters L. K. H.

The second, the letters C. P. H.







The third and last, the letters G. F. C.

We could go on and tell the workmen how these ought to be shaded to look well; but we long ago were convinced that the painter who was skillful enough to paint the figures, ought to have taste and ingenuity sufficient to color the monograms. It is well known among workmen that the shades which some admire would be displeasing in the minds of others, so that upon the whole the task of instructing others in shading monograms is but a thankless one at best.

Trimming Room.

GOSLING'S COMBINED STEP-COVER AND WHEEL-FENDER.

This invention of a practical carriage-maker is designed for preventing the accumulation of mud and dust on the steps of carriages, and also for guarding the dresses of the ladies from coming in contact with the muddy wheel on entering and leaving the carriage. This invention commends itself to the attention of purchasers of pleasure vehicles, and its real utility ought to be seen at a glance. No gentleman desirous of cultivating "peace in the domestic circle," can afford to be without this im-

portant appendage to his "turnout." Read the advertisement in its proper place.

INDIA RUBBER PROP-BLOCKS.

HERE is something really useful. We remember the time when, as the youngest apprentice, we were allotted the special business of fitting on the prop a block of wood both clumsy and fragile. This was afterward trimmed; but, between the wood-workman and trimmer, the thing was often rendered unfit for the purpose intended. In "Barnett's Patent Rubber Block," now offered to the public, we have elasticity, durability, and neatness all combined. The young man who invented it, out in Ohio, a few years ago, has since died; but we are happy to find that a party in this city has now taken hold of the matter with spirit, and intend to provide a full supply for filling all orders which may be given for it. We are much mistaken if this *block* does not soon supersede all others. Our readers are invited to give it a trial. Six pairs in a box, at 75 cents a pair.

Editor's Work-bench.

FOREIGN LABOR.

ONE of the questions discussed at the "Labor Congress" in Chicago, was the necessity of having an agent in Europe to persuade or dissuade skilled workmen from coming to the United States to compete with the workmen now here. The Congress directed the appointment of such an agent, with power to make arrangements, "by treaty or otherwise," with the workmen of Europe, not to come hither when employment should be offered them. This policy is precisely that insisted upon by "Tall Bull" and the "Man-that-walks-under-the-ground," and other chiefs of the Indian tribes on the Plains. They insist that the country west of the Missouri is not more than enough for the Indians who have to make their living therefrom, and they wish, "by treaty or otherwise," to make an amicable adjustment, by which no more whites shall come that way. It would have been well for the "Labor Congress" to have requested the Cheyennes and the Arapahoes to send one of their number along with the delegate from the Congress, to remonstrate with the mechanics and laborers of Europe against sending any more people to this already *excessively crowded country*. The plea of the Indian would certainly be accepted as more reasonable than that of his white associate.

There is not an industrial occupation in this country the ranks of which are not filled with men of every nationality. In point of fact, our entire population must trace their ancestry back to foreigners who have come here to benefit their condition. There is not a "Union" in the country where the broad English, Scotch, and Welsh dialect may not be heard with the Irish brogue and the German accent. And yet these men, and others whose Americanism is but a generation old, propose to remonstrate with the people of Europe against their coming hither to gain a livelihood. In the debate it was stated that the English operatives have a fund upon which they draw to relieve their distressed brethren by giving them the means to come to America and find work. Against this most humane proceeding this Congress protested. A skilled laborer is never a pauper. The man who is a mechanic is a capitalist. If he cannot find work in one place he can find it in another. His skill, his industry, and his knowledge are valuable acquisitions to any community to which he may take them. Our Congress does not think so. If the iron, cotton, and woolen mills of Europe be stopped; if the mines be closed, and labor thrown out of employment, they insist that the workmen shall stay there and perish. All honor to the workmen of Europe who give of their means to aid a fellow-workman to reach America, where, by his industry and his skill, he can feed and clothe his family and educate his children.

Let no man go to Europe, professing to represent the American people, who will venture to remonstrate against sending hither the suffering and the poor who are able and anxious to earn their bread by honest toil. We are receiving from Europe an average daily arrival of one thousand emigrants. These embrace mechanics of all kinds, farmers, and unskilled workmen, with their wives and children. These people come hither, as our fathers and grandfathers came, not as paupers, but as men seeking remunerative fields of labor, where they may have the blessings of civil and religious freedom, and where their children may grow up citizens of a free, happy, and prosperous country. As well may the "Labor Congress" expect to stem this tide as to restrain, "by treaty or otherwise," the waters of Niagara.

The Congress at Philadelphia, at its late session, seems to have recognized this fact, as the following declarations in their platform develop: "To prevent this calamity, the public lands adapted to agriculture should be given, in reasonable quantities, to *none* but American citizens, *and such as have declared their intentions to become citizens.*" Their wrath now seems to be concentrated upon Coolie immigration, as the following resolution introduced will show, "*Resolved*, That while we appreciate the *benefit to be derived* from voluntary immigration, we are opposed in toto to the importation of a servile race, bound to fulfill contracts entered into on a foreign soil."

The second sober thought of the "Congress" has also resulted in sending their delegate to the International Convention of Switzerland, instead of to England, "to per-

suade or dissuade skilled workmen from coming to this country." As long as there are millions of acres of land lying idle, and waiting, free of cost, the hand of labor to make them productive; while centuries are to elapse before the country will be provided with the hands and the means to develop its resources, labor will seek our shores to find that remuneration it can find nowhere else.

The proposition to close the doors to human industry, and shut out from free America the workingmen and laborers of the human family, that those now here may have the monopoly, is such an arrogant and uncharitable assumption, that it should be branded with reprobation by every man in the land.

The National Labor Congress likewise adopted a resolution opposing the employment of convict labor in penitentiaries. The Congress have it in their power to do an important work for their constituents, and for the community at large. Whatever elevates them, by lawful means, is an advantage to all. We hope they will pursue an enlightened policy, put themselves in better relations with their enemy (?) "capital," by obtaining plenty of it, and generally improve their condition.

But the crusade against convict labor is wholly unwise. The State of New York has, say, one thousand convicts in the Penitentiary. It costs, say, $250 each, to maintain them one year, or $250,000 in the aggregate. This money must be raised in one or two ways:—either by direct taxation, levied upon the "workingmen" as well as others, or by making the convicts earn their own living. Which is best for the entire community, the workingmen included? Suppose half of the people of the State were confined in jails and penitentiaries, hospitals and asylums, or isolated in any other manner, would it be better for the outside half to support them in idleness than to have them support themselves? Is an industrious man enriched by having an idle man dependent upon him for support? The proposition of the N. L. C. would make the penitentiary, for many persons, the most desirable place of abode in this State. Plenty to eat and nothing to do is the *summum bonum* of a large class in every country. The fallacy of the N. L. C. consists in supposing that the work which one man does is an injury to every other man. They do not object to penitentiary labor so much because it is performed at all. Their theory is, that if A. and B. work side by side, A.'s labor diminishes B.'s wages. To carry out their philosophy it is only necessary to stop A.'s work altogether, and require B. to furnish him bread and meat, in order to put the latter on the high road to prosperity. But, it may be said, that if the convicts received wages, there would be no objections to their working. They do receive wages in the form of their support and maintenance. It is true they do not receive "Union" prices, but they get all that they earn, as is proved by the fact that the penitentiary statistics have shown a loss of a considerable sum of money. Is it desirable to pay them more than they earn? If so, the honest workingmen must contribute their share of the extra wages, to enable criminals to get better pay than themselves.

The "Labor Congress," while in session, through some ninety gentlemen, endeavored to legislate for the twenty-five millions of people of the country who live by their labor, and, among other things, adopted something definite upon the subject of "eight hours." This "Congress" has resolved that "The National Labor Congress earnestly recommends the adoption of such measures among all classes of workmen, in all sections of the country, as will secure the adoption of the 'Eight-Hour System,' and calls upon the respective State Legislatures to follow the example of the National Congress in recognizing eight hours as a legal day's work." All this means something or nothing. What will be an efficient Eight-Hour Law in the estimation of these men? In the absence of law, no man can be compelled to work any longer per day than he of his own free will consents to labor. Can any law be framed that will give the laborer any greater freedom than he now enjoys? In the absence of any law on the subject, every workman is at liberty to work when he pleases, as long as he pleases, for whom he pleases, and at wages prescribed by himself, or not work at all. The employer has an equal liberty. He can employ whom he pleases, can have them work for as many hours as he pleases, pay them such wages as he pleases, or he need employ none. Can there be a larger liberty than this? Can there be a law devised which can improve on this condition of things? Do these men propose that there shall be a law which shall punish by fine or imprisonment any man who works more than eight hours a day, or who pays men for working more than eight hours a day, or who permits his workmen to work longer than eight hours a day? Is that the idea of "an efficient Eight Hour Law"? Any law which leaves the workmen and the employer free to agree upon the wages and the hours of labor, is nothing more nor less than the law as it now stands. (Some two years ago, certain members of the different legislatures were flattering themselves upon having procured the passage of an eight-hour law, and there was quite a contest as to which of them was entitled to the honor of being its "author." At the convention in Chicago, the "Labor Congress" voted that that law was "a fraud upon the laboring classes," and just such a fraud as might have been expected by such men! The law had not been in force quite four months, and already its authors were branded by the workingmen with having committed a fraud upon them.) Now, do they propose to take that freedom away, and to prohibit labor beyond eight hours, and thereby prohibit men from earning what they can by laboring when they can, and for the best wages they can get? It is not easy to imagine a severer

despotism than that which shall limit the freedom of labor, either in respect to the prices or the amount of wages. Yet the "Labor Congress"—a body professing to legislate for the special interest of workingmen—insists that there shall be such laws upon the National and State statute books. It is needless to say that a Congress that is guilty of this absurdity, either does not understand the true interests of any class, or is playing the part of the demagogue by the use of incomprehensible jargon.

COACH-MAKERS' TARGET EXCURSIONS

ON the ninth of October the employees of two of the largest carriage-manufacturing firms in this city gave their employees a holiday, which the men improved by going on a target excursion to localities in the suburbs.

The first we shall notice was that of the hands of the Messrs. Brewster & Co., of Broome street, to which we were specially invited, and did expect to attend, but circumstances prevented. We however made such arrangements with a friend, that through him we are enabled to give a very fair report of the day's proceedings. Premising that the firm had closed both their manufactory and repository for the day, the men formed a company early in the morning, and then, preceded by a full band of musicians, marched up-town through the most public thoroughfares, with their friends and invited guests, to Kapff s Lion Park, at the corner of 110th street and the Eighth avenue. There during the day the employees engaged in target practice, for the most expert of which rich prizes had been prepared. Those not thus employed amused themselves by conversation and otherwise on the spacious and airy piazza.

In the evening, at the call of the drum, the assemblage sat down to a luxurious dinner specially prepared for this occasion by the host, the employees being decorated with blue sashes, and the members of the firm with carmine. On the whole, the assemblage was a fine one. Indeed, as one of the speakers remarked, "they represented as fine a body of men as ever marched up Broadway." Dinner being over, the chairman called the meeting to order, the first toast proposed being, "The long life and prosperity of the Messrs. Brewster & Co."

To this toast J. N. Britton, Esq., a member of the firm, in substance responded: That this occasion, for the firm and himself, was one of much pleasure and satisfaction. He was thankful to find that the workingmen, who had aided them on the road to success, had likewise, on this day, brought along with them feelings of good will toward their employers. He did not intend to enter into any lengthy remarks, but would simply add, that having done all in his power to make this affair a success, he would now read to them a document addressed to the employees of Brewster & Co., of which the following is the substance:

"Fully recognizing the value of harmonious action between employer and employee, and being always willing to promote and encourage true principles of co-operation —harmony—we have concluded to let our workmen, in future, share in a proportionate amount of our net profits, provided the wages of each hand shall amount to $100; this offer to take effect from the 29th of September last. And we will not only include the profits of our factory in Broome street, but likewise those of our salesrooms on the Fifth avenue." (Cheers from the crowd followed this announcement).

"Under this arrangement every person in our employ will be entitled to a dividend according to the amount of wages paid him during the year; in addition to which we propose to make such arrangements that our employees shall have the attendance of a physician when needed, provided they do not live at too great a distance, whose bills for this service shall be paid from our profits. The amounts which in this way will yearly be distributed among our men we estimate will be about $8,000. Of course this amount may be lessened by the effects of dull times and increased cost of material; but we are confident that it will rather be above than below this estimate, and to make a practical beginning we have set aside a fund of $1,000."

After submitting a plan by which committees from the shops are to make arrangement and settlement of accounts between the workmen and the firm at the close of each fiscal year, Mr. Britton declared that, "neither disaster, disappointment, nor misfortune in business had induced the firm to make this voluntary offer to their employees, for the firm of Brewster & Co. is now doing the largest business of the kind in the United States, and had been more successful the past year than ever before. (Prolonged cheers.) And they were now disposed to make it more so in the future for the mutual benefit of all, and thus secure the interests of labor and capital, in good will, by co-operation."

Loud and prolonged cheering followed this address; and after silence had been restored, replies were made by others commending the action of the Messrs. Brewster & Co., and declaring that this was a move in the right direction, and well calculated to fill the gap which unfortunately existed between capital and labor, and which, unless checked, threatened ultimately the downfall of our Republican institutions. There never was a better established fact than that the interests of labor and capital lay in reciprocity. Altogether this was one of the finest excursions of the season. Much credit is due to the committee of arrangements for the able manner in which they discharged their duties, and to the Messrs. Brewster & Co., whose liberality contributed in making this occasion long to be remembered by all present.

On the same day the employees of Messrs. Corbett &

Scharch, of West Twenty-fifth street, went on a target excursion to Menshausen's Grove Hill Park, at Morrisania, Westchester County, N. Y. On the march the company displayed a truck gayly decorated, on which was borne a fine specimen of "Our wagon," for the building of which this firm has become somewhat noted, and which attracted much attention. As customary on such occasions, the members of the firm and friends had provided an ample supply of prizes, as rewards to the best marksmen. After a day of much enjoyment, the company, at a late hour in the evening, returned to their homes, well satisfied with the manner in which they had spent the day.

On the 16th of October the employees of Mr. J. B. Brewster, of Twenty-fifth street, likewise went on their first annual excursion and target practice, to Lion Park, before mentioned. The company, with about ninety members, under the direction of Capt. Thos. H. Wood, formed at the factory at 8½ o'clock, A. M., when Mr. J. B. Brewster, in a short address, to which Capt. Wood responded on behalf of the company presented it with an elegant banner, costing $150, appropriately lettered in monogram and otherwise.

Soon after the company reached the Park, and the members had taken a hasty lunch, shooting commenced, with the following result: Moran (blacksmith's helper), won the first prize, an elegant gold watch; C. Powell the second prize, a check for $50; Fagan and three others the third prizes, each a check for $20. There were some thirty-four prizes in all, distributed to the members of the company, details of which we have not space to give. Shooting over, the company, with about forty lady friends and invited guests, set down to an excellent dinner, prepared by "mine host" of the Lion Park Hotel, to which full justice was done; after which the party engaged in conversation and other amusements in the adjoining rooms until a late hour in the evening.

CHARGES FOR REPAIRS IN NEW YORK AND BOSTON.

We intimated in a former article in noticing the tariff of carriage repairs, published in *The Hub*, as charged in New York, that although we considered some items rather high, yet upon the whole it might be taken as a fair statement. Since that article was penned this same journal has published a tariff for Boston. We are thus enabled to give the prices for New York and Boston, side by side, with some variations furnished us by a reliable manufacturer of this city. These we have included in the list in brackets. Whilst some of these charges are strikingly alike, some items are equally variant. For instance, there is nearly fifty per cent. difference between the two cities, in the items of tires and repairing carriages, which cannot be accounted for on reasonable grounds. One is almost led to conclude that there must be some mistake with the printer. At least comparisons in this instance are absolutely odious. Here they are:

	New York.	Boston.
New Steel Tires and Bolts on Light Buggy Wheels	$20 00	$18 00
New Iron Tires and Bolts on Light Buggy Wheels	18 00	14 00
New Iron Tires and Bolts on Four Passenger Wheels	26 00	16 00
New Iron Tires and Bolts on Coach Wheels	40 00	23 00
New Iron Tires and Bolts on Light Brett Wheels	34 00	16 00
Resetting Tires on Light Wheels	6 00	5 00
Resetting Tires on Heavy Wheels	8 00	6 00
New Tire Bolts in Old Wheels, each [10c.]	12½	12
Carriage Bolts, each [30c.]	25	25
Drafting Wheels, per set [$1 00]	75	1 00
New Rims on Light Wheels, per set [$16.]	18 00	16 00
New Rims on Heavy Wheels, per set	20 00	20 00
New Light Spokes (unpainted), each [63c.]	75	75
New Heavy Spokes (unpainted), each [75c.]	1 00	1 00
New Hub in Old Wheel [$4 25]	6 00	5 00
New Axle Bed (not painted) [$3]	4 00	4 00
New Single Perch (woodwork only)	5 00	5 00
Pair Double Perches (woodwork only)	6 00	6 00
New Spring Bar	2 00	3 00
New Shaft Bar [$2 00]	1 75	3 00
Set of Light Wheels, boxed, tired, and painted [$75]	85 00	65 00
Set of Heavy Wheels, boxed, tired, and painted [$90]	100 00	100 00
One New Shaft (unpainted)	4 00	5 00
Head Block (unpainted)	2 50	3 00
Resetting Light Axles, per set [$6]	5 00	4 00
Resetting Heavy Axles, per set [$8]	10 00	5 00
Washering and Oiling Light Axles, per set	1 00	1 50
Washering and Oiling Heavy Axles, per set	1 50	2 00
Retrimming Shafts, per pair	4 50	4 00
Recovering Dash of Box Wagon (double)	9 00	10 00
Recovering Dash of Open Front Box Wagon (double)	10 00	12 00
Pair of Perch Straps for Buggy	2 50	1 50
Pair of Safety Straps for Shaft	1 50	1 00
Recovering Glass Frames of Ordinary Size, each	3 50	2 50
New Pole Yoke with Plated Tips, Leathered	6 50	6 00
New Pole and Yoke	40 00	50 00
Silver Plated Shaft Tips, per pair	2 00	1 50
Capping set of Top Nuts with Silver	3 00	2 00
Full Plating set of Axle Nuts, small	6 00	1 50
Cleaning, Japanning, and Burnishing Lamps, per pair	6 00	10 00
New Black Lower Panel in Coach; taking out and replacing the Back Lining, and painting Panel	40 00	
Burning off Old Paint (or Cutting Down), Repainting Body and Carriage-parts of Coach, thoroughly	185 00	100 00
Ditto, Six Seat Rockaway, Paneled	160 00	90 00
Ditto, Four Seat Rockaway, Paneled	135 00	75 00
Ditto, Light Express		45 00
Ditto, Four Seat Beach or Box Wagon		40 00
Ditto, Buggy [$45.]	55 00	40 00
Coloring and Varnishing Body, Painting and Striping Rims, and Varnishing Carriage-parts of Coach	115 00	75 00
Ditto, Six Seat Rockaway	90 00	40 00
Ditto, Four Seat Rockaway	75 00	35 00
Ditto, Light Express		18 00
Ditto, Four Seat Beach or Box Wagon		30 00
Ditto, Buggy	35 00	30 00
Touching up and Varnishing Body and Carriage-parts of Buggy	25 00	15 00

APPLICATION OF CANVAS TO WOOD.

THE following note comes to us through the mail:

Mr. EDITOR: Will you please explain in the columns of the Magazine the best mode of applying canvas to the round corners of bodies and seats; also what heft of canvas is best for outside canvassing. Yours, etc.

D. J. S.

The article generally employed on inside work nowadays is known as *scrims*, and will be found in our Price Current. This is a thin linen fabric, prepared with special reference to holding glue. It should be saturated in glue, well cooked, neither too thick nor too thin, and after pressing out the redundant glue, by drawing through the fingers, should be applied as hot as possible, and well rubbed on; the harder it is rubbed the better. Outside canvassing is difficult to paint over, and should be studiously avoided, if possible, particularly on new work. We see no necessity for using it, except in an imaginary case where a fissure or crack may appear in a panel after the job has been turned out. In such cases we have seen a strip of fine tape, neatly let into the panel, glued over the crack, and painted, with tolerable success. If D. J. S. will follow the directions on page 98, volume X., for framing the round corners, we think he will find no need of canvassing the *outside* of corners at any time.

LITERARY NOTICES.

THE publisher sends us a copy of *The Painter, Gilder, and Varnishers' Companion.* Containing Rules and Regulations in everything relating to the Arts of Painting, Gilding, Varnishing, Glass Staining, Graining, Marbling, Sign Writing, Gilding on Glass, Coach-Painting and Varnishing, Tests for the Detection of Adulterations in Oil Colors, &c., and a Statement of the Diseases to which Painters are peculiarly liable, with the Simplest and Best Remedies. Thirteenth Edition. Revised. With an Appendix, comprising Descriptions of a great variety of Additional Pigments, their Qualities and Uses, to which are added Dryers, and Modes and Operations of Painting, &c., together with Chevreul's Principles of Harmony and Contrast of Colors. Philadelphia: Henry Carey Baird, 406 Walnut street. Price, by mail, free of postage, $1.50.

This work has already passed through several editions, the latest of which has been very much improved by additional instructions in coach-painting and varnishing, material for which was supplied by the editor of this magazine. We have above given the title-page entire, from which the painter will readily perceive that this is a valuable and useful work for the paint-shop, and which he cannot well afford to be without.

The Painter's Magazine, published in Cincinnati by J. Sonnedecker & Co., is "a Monthly Journal of New Styles, Improvements, and General Information in the various branches of the business." Price, $1.25 a year. Painters generally will find much useful information in the pages of this clever monthly.

The Atlantic Monthly for October is a very interesting number. "The City of Brass," gives some hard hits at a certain class of modern reformers. "The Brick Moon," "The Egotist in Life," and "The Increase of Human Life," are the titles of other articles. "A Dredging Excursion in the Gulf Stream," from the pen of the gifted Mrs. Agassiz, will be read with the deepest interest and profit, by all real lovers of the works of nature.

EDITORIAL CHIPS AND SHAVINGS.

ADVENTURES OF THREE JOURS.—Unavoidable circumstances compel us to omit publishing the article under this head this month. We shall resume it in December.

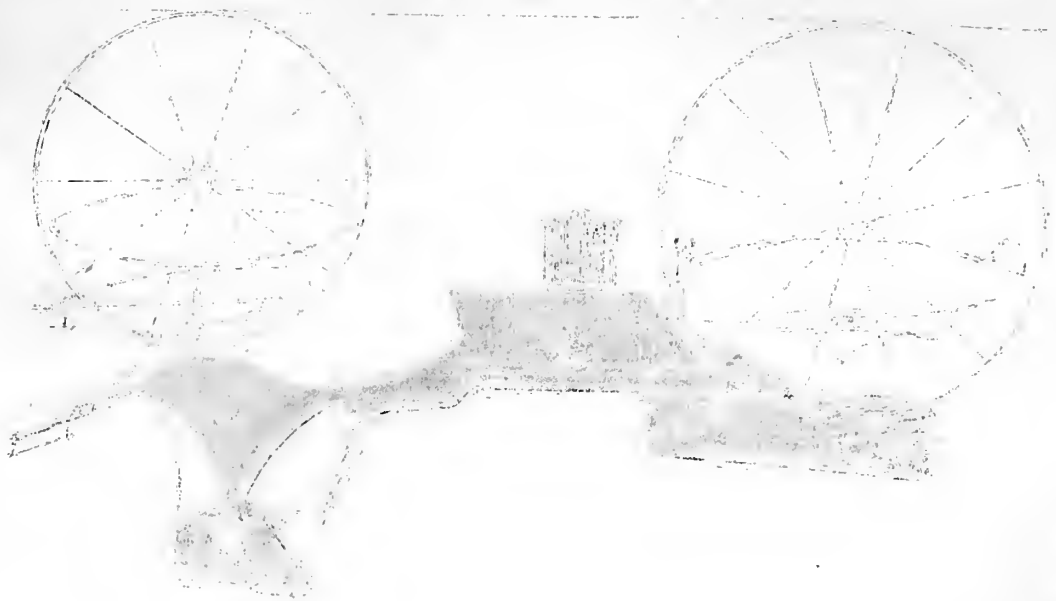
A PEACEMAKER.—An ingenious invention has been introduced in Paris for settling disputes between cab-hirers and cab-drivers. It records the exact distance traversed, and indicates the sum of money due the driver, and is beyond the control of either hirer or driver.

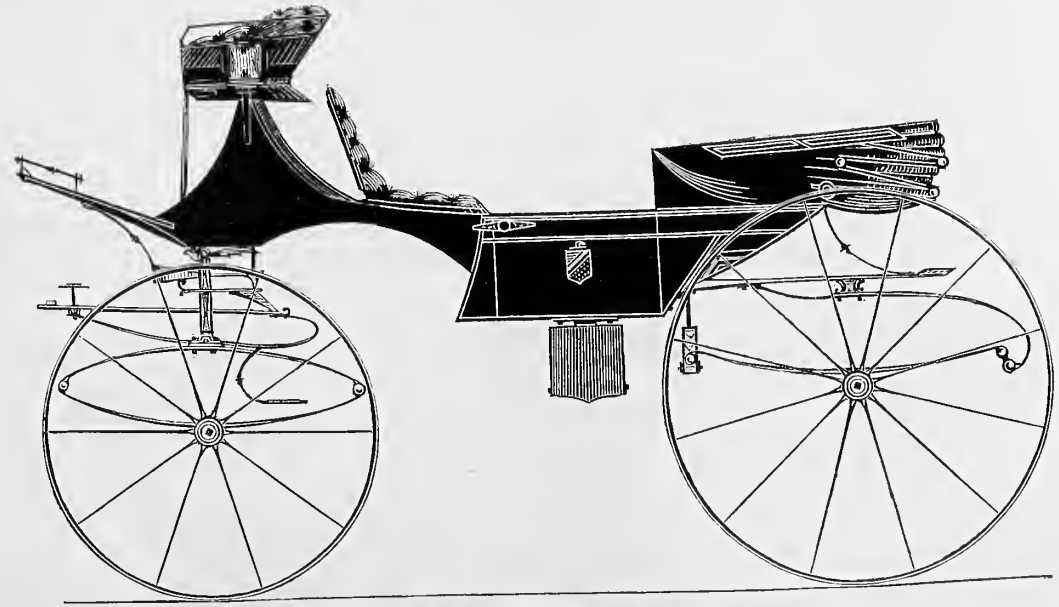
PROPELLING STREET CARS BY COMPRESSED AIR.—Mr. Waylies, of New Orleans, has recently invented a car which has proved a complete success. In the car-station there is an ordinary steam-engine of about sixty-six horse-power for compressing air into reservoirs. The reservoirs are made of a paper composition, and two of them are placed on top of the cars. On each car there is a small engine operated by air supplied from the reservoir in the same manner as steam, giving the exact amount of power that was required to compress the air. The engine is not difficult to run, and the cars can be stopped much more readily than where horses are used. Each car will have 300 pounds of compressed air to start with, which will be sufficient to run it nine or ten miles. The exhausted air as it escapes from the engine may be used for ventilation. The New Orleans *Picayune* says: "When this system is adopted in our city, it will cause at least 5,000 mules to be sent into the country, thereby being of much benefit to the farmers." In New York there are some 40,000 animals employed on the various railway-lines. The release of this immense number of horses would do much toward reducing their value. The cost of running cars by this method would be much less than at present, and the speed more uniform. It is claimed that cars can be stopped quicker with the compressed air than by horses.

HACK AND HACKMEN IN SWEDEN.—An American gentleman traveling in Europe sends home the following relation of his experience:

"Neither is there any easy communication between the two capitals—Christiania and Stockholm—as we found to our suffering when compelled, a few days ago, to ride in a rickety wagon from eleven o'clock one morning to two the next, and all this time at the mercy of a driver who was not sober one minute out of the fifteen hours. He carried a bottle of brandy in his pocket, drank it empty before he had finished two-thirds of the journey, had it filled again, took a comfortable nap at several stations by the way, and seemed to think he was doing us a favor every time he commenced the drive afresh toward Carlstadt, where we were to take the steamer for Christinehamm, and thence by rail to Stockholm."

SELF-MOVING CABS, VELOCIPEDES, AND OTHER VEHICLES.—An Englishman writes to the *Builder* that he has invented a machine, and tells the editor: "You may think that like a young horse it will not stand still except I hold it. I feel quite convinced that this motive power will revolutionize all kinds of conveyances." This is not the first time that horse-flesh has been placed in jeopardy—nor do we expect it will be the last.

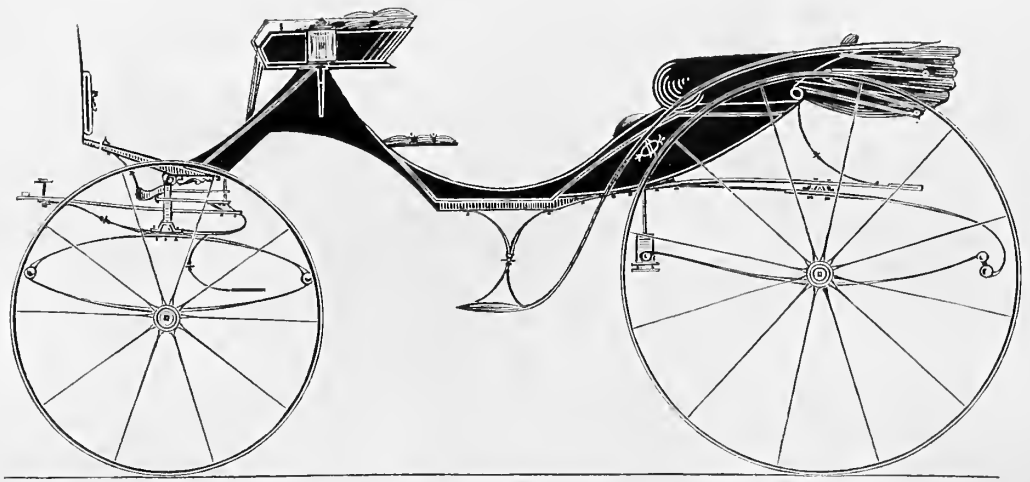




PARK PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

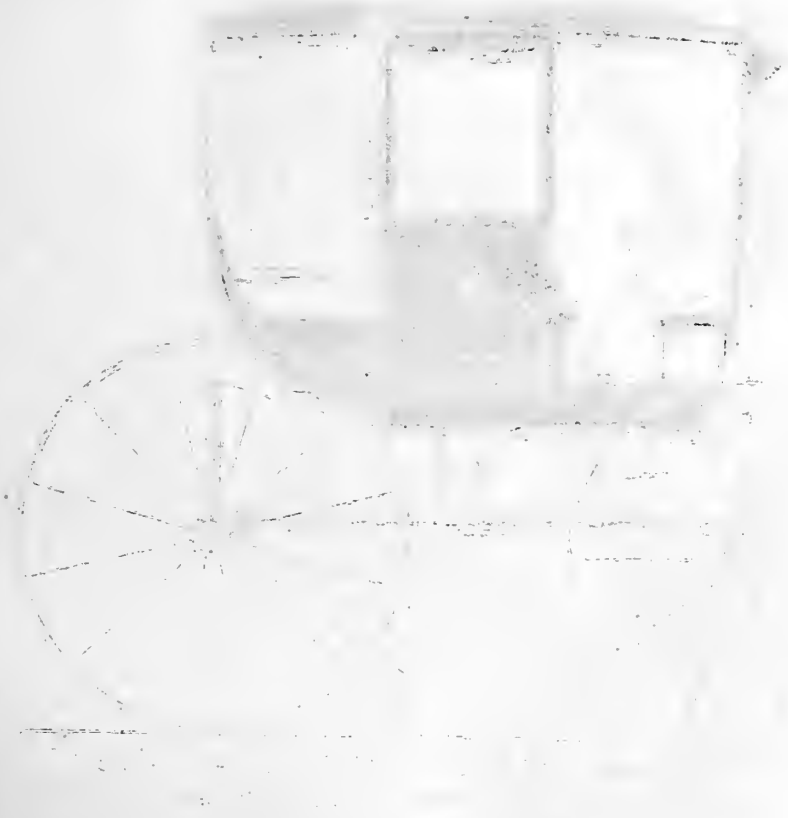
Explained on page 104.

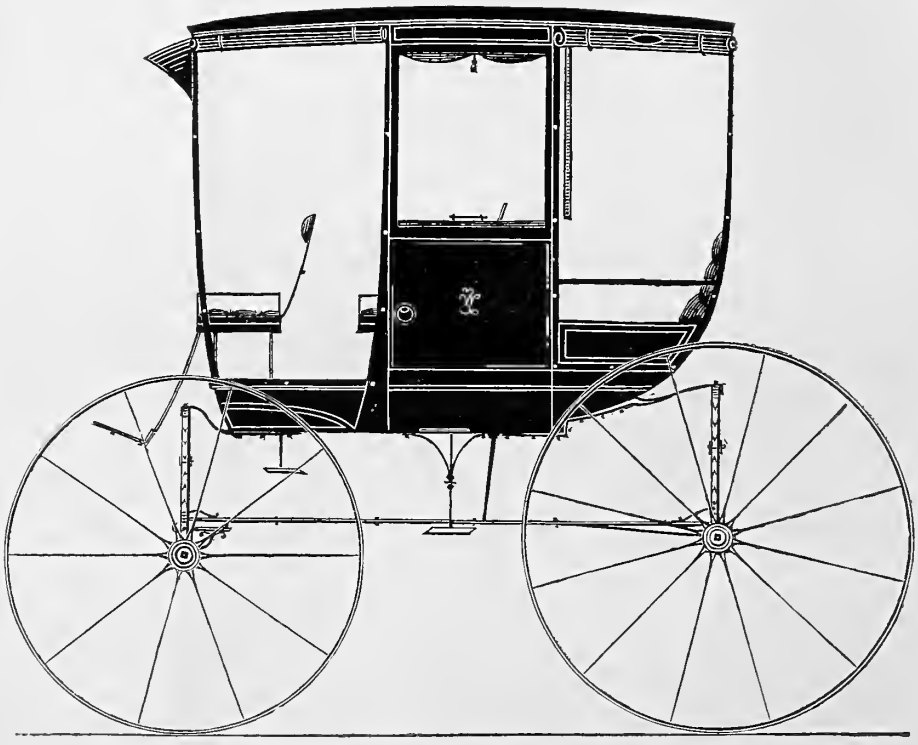


EXCELSIOR VICTORIA PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 104.

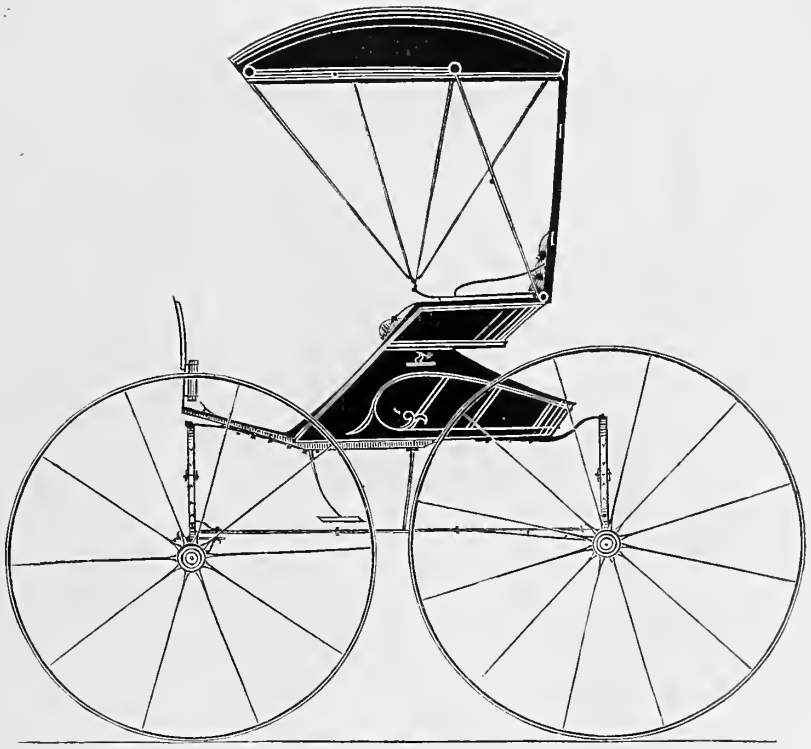




COUPE-PILLARED SIX-SEAT ROCKAWAY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 105.



NONPAREIL TOP BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 105.

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XI. NEW YORK, DECEMBER, 1869. No. 7.

Mechanical Literature.

THE ADVENTURES OF THREE JOURS.

BY H. S. WILLIAMS.

Chapter VI.

Saturday morning dawned as bright and beautiful as ever the flowery month of June could show in the sunny South. Not a cloud could be seen, while a cool western breeze betokened a pleasant day, and our two friends left their boarding-house, just as the sun was rising above Capitol Hill, in a light top-buggy, drawn by a pair of fiery iron grays. For once Gloner had taken extra pains with his toilet, for he was dressed with taste, thanks to his friend Loring and—his barber. As for Loring himself, he would have done honor to a Saratoga ball-room in the height of the season; and as he drew the reins in his buff-gloved hands, a stranger would have taken him for a gentleman of the Beau-Brummell stamp, in fact a little more of the dandy than the mechanic.

Away from the hills that surround Montgomery, the broad, level country stretches out to the southward for fifty miles or more, forming a belt that runs diagonally across Alabama, and known as the cane-brake region. This belt comprises the finest cotton-producing region perhaps in the world, and forms the wealthiest portion of the State. Immense plantations stretch out on every side, presenting at a single view vast fields, containing hundreds of acres of the great staple of the commercial world—a sight full of beauty and interest to all, but more particularly to Northern eyes. Most of our readers, perhaps, have never seen a field of cotton; therefore, a brief description would not, we trust, prove uninteresting. From an elevated spot, imagine a plantation stretching away as far as the eye can reach, all planted in cotton, the rows as straight as a line, and just the same distance apart. At this time the weed is about two feet high, and one mass of bloom. All blossoms that open to-day are white as driven snow, but to-morrow they will have passed through a complete transformation, and will be a dark pink, so that the field in full bloom presents a variegated and most pleasing appearance. To us it is one of the most beautiful sights in the world, and every year as we look at it we feel new sensations of delight. Is it a wonder, then, that our two friends, Gloner in particular, who was an enthusiastic lover of the beautiful, should pronounce it the most lovely scene they had ever gazed upon?

"What a glorious picture!" exclaimed Gloner, with rapture; "how pure the white blossoms look; and such a white, not like the magnolia or japonica, dazzling one to look upon it, but so creamy and rich! And then the pink; how delicate, and how beautifully tinged with white on the edge, and growing deeper and darker as you advance toward the young ball! I would love to live here forever. Here is independence for you, wedded to a life of ease and most elegant leisure. The planter with a hundred or two bags of cotton in his gin-house, is indeed independent of the world. It would be a life that I would delight in above all others."

At the end of a couple of hours they approached the residence of Mr. Linden. Like all others they had passed during their morning's ride, they found its architecture peculiarly Southern—a low, rambling edifice, with a broad piazza in front, a large kitchen and a dozen outhouses to the rear, yet presenting a most comfortable and home-like appearance. Huge live-oaks and china-trees surrounded it, and as they drove over the well-graveled road, bordered by neatly-trimmed hedges, they were met by Mr. Linden, who gave them a hearty, old-fashioned welcome, that made them feel at home immediately. And then Miss Lucy, so charmingly beautiful in her plain muslin dress, greeted them so cordially, and with such a sweet smile, that Loring immediately extended his visit from "over Sunday" to a week at least.

"You will find it rather lonesome here," she said, "for at this season we have but little company; yet we will do our best to make your visit a pleasant one."

"Do not fear but what we shall enjoy ourselves," replied Gloner. "It is not in crowded saloons that I find pleasure, but in the society of a few true and warm-hearted friends. The only visit I ever paid in my life, upon which I look back with real pleasure, was to a very dear friend of mine upon the prairies of the far West, and the only company present was himself and wife."

"I will agree with you," she replied, "that social pleasure does not depend upon the number of persons gathered together; and, like yourself, I can enjoy myself much better with two or three true friends than in a large, mixed company; and if the axiom holds good in all cases,

we ought to have a pleasant time, for, with the exception of a lady friend who will visit us this evening, we must depend upon ourselves for enjoyment." Here a servant announced breakfast, when she continued: "We have delayed our morning meal in anticipation of your arrival."

"To which we shall do ample justice," said Loring, "for our morning ride has given me a most excellent appetite."

The old-fashioned Virginia custom of Mr. Linden's childhood was still retained by that gentleman, and with great good taste, too, as his well-supplied sideboard testified, the contents of which helped to sharpen their appetites to such an extent that they both declared it one of the best breakfasts they ever sat down to. There was ham and eggs, young chicken most tender and nicely fried, hot biscuit and batter-cakes, the irrepressible corn-bread, coffee with the richest of cream, the sweetest of butter, and grits, a dish peculiarly Southern, and half way between the *mush* of the Middle States and the hominy of the West—to all of which our friends did ample justice, as hinted above, and during the enjoyment of which they both silently voted Miss Lucy a most capital housekeeper. And then Mr. Linden proved himself such an agreeable host; he was polite, anticipating every wish of his guests, yet never seeming to insist on anything.

"As this is your first visit to a cotton plantation," he said, "the mode and manner of cultivating the great Southern staple will undoubtedly prove both novel and interesting."

"In the learning of which I expect a great deal of pleasure," replied Gloner, "for the further pursuit of knowledge in any useful department always affords me great pleasure. I know nothing of the cultivation of cotton practically; theoretically, I have learned something from your Southern agricultural writers in the magazines of the day."

"And after all," replied Mr. Linden, "it is all theory. Practically you know but little of anything. You may take the written *modus operandi* of the most successful planter or farmer in the country; you may study his manner of making any one crop of which you know nothing previously, and if you attempt to follow it, nine times out of ten you will meet with a complete failure. You will learn more by one year's practical experience than by reading his observations of twenty years. Cotton is at once the most interesting as well as the most curious of all plants; it has a thousand enemies to contend with, from early frost up to the score or two of worms and caterpillars that prey upon it, yet it is the most susceptible of good treatment of any of the plants. Cultivate it well and it will generally repay you with an abundant crop, but a week's neglect at a certain stage of its growth, and it is ruined."

After the meal was finished they found three horses saddled and bridled awaiting them.

"I always take a ride over the plantation every morning when the weather is pleasant," said Mr. Linden, "for overseers as well as field-hands need watching and looking after sometimes, and I thought, perhaps, you would like to accompany me."

"You could not have divined our wishes better," said Gloner, as they lit their cigars and started off. At the end of a couple of hours they returned, warm and somewhat wearied, but highly delighted with their ride and observations, and Gloner confessed that he had learned more by seeing the crop growing, and by listening to Mr. Linden's practical observations, than in all his previous reading. Then an hour's *tête-à-tête* with Lucy only seemed to confirm Gloner in his previously-formed opinion that she was the most delightful companion he had ever known. While looking over a large cabinet of curiosities that had been gathered up during an extended tour of Europe and the far East by Lucy and her father a couple of years before, they were interrupted by the swift sound of horses' feet on the hard graveled road without.

"There comes Kate," cried Lucy; "I always know when she is coming, for she never rides unless at a full gallop. Let us go out and meet her."

They reached the piazza just in time to see a lady halt and spring to the ground, when, turning to the servant who followed her, she exclaimed, "Rub Bess off; let her stand half an hour in the shade, then water and feed her well! no mistake now!" and with a bound she was by Lucy's side; seeing strangers present, however, she receded a step, somewhat embarrassed, but was immediately reassured by Lucy, who grasped her hand, and, after kissing her, exclaimed, "Dear, bonnie Kate, I am so glad to see you. Allow me to present Mr. Gloner. Mr. Gloner Miss Corneil—and Mr. Loring. You have heard me speak of them."

"Ah!" she exclaimed, losing her embarrassment in a moment, "your Mobile friends. I have heard Lucy speak so highly of you both, and having such faith in her good taste and correct judgment, I am confident we will be the best of friends."

Gloner said something in reply, he never knew exactly what it was, for, cool and collected as he usually was, for once he was somewhat confused; she came upon him so suddenly, like a planet of the first magnitude, eclipsing and dazzling for the moment; and when she passed within to take off her riding habit, he remembered that she was tall and gloriously beautiful—an ideal queen, with a regal carriage, large, flashy, black eyes, raven hair, a complexion darkened by exposure, and a profile as perfect and classical as the marble graces of the ancient masters in the sculptor's art.

"What a magnificent woman she is!" exclaimed Loring, as they were preparing their toilet for dinner. "What life, what animation, what perfect health, and what a glorious flow of animal spirits!—a perfect type of the Lady Gay Spanker school, yet more womanly and more lovely. She charms, and at the same time awes one to think that such life is mortal."

Such a dinner as followed they had never enjoyed before. Mr. Linden was calm and dignified—such dignity as always envelops the true gentleman—yet genial as the noon-day sun in his boundless hospitality. His conversation betokened the gentleman of refinement and education. He discussed grave questions of State with most liberal views in which he was ably seconded by Gloner, whose extensive reading was brought in play in a manner that presented his talents in their best array. Loring, under the influence of Miss Corneil, was witty and sparkling. Lucy quiet and unobtrusive; while "bonnie Kate" was at home on all subjects, presenting original ideas in the richest language and most vivacious style.

When the dessert was finished, Kate rose from the table and said: "Come, Lucy, let us leave the gentlemen to enjoy their wine undisturbed, after which we will take a ride over the plantation. I give you warning, Mr. Linden, that I am going to excel you this year, and I want to

see what I have to do by taking notes on your crop; so be kind enough to order out the horses, while Lucy and myself get ready for the ride."

"What a charming creature!" exclaimed Loring as the door closed behind them.

"Yes," returned Mr. Linden, "and as good as she is charming. She is one of my nearest, as well as one of my best neighbors. Five years ago she was as quiet, unobtrusive, and dependent as Lucy now is; but her parents both died very suddenly while she was North at school, and unfortunately left the estate in debt. She immediately returned home, took the whole business in her own hands, saw all the creditors, got time to pay the debts, and went to work. Though only fifteen years of age at that time, she managed everything so well that she has paid every dollar, and made money besides. Every morning you can see her at sunrise galloping over the fields, giving orders here and there with a quickness and precision that is really wonderful. Her ideas of farming are far in advance of the planters in the neighborhood generally; and she made no idle boast when she said she was going to excel me this year in her crops, for some twenty servants, out of pure love for her, have done more work than my thirty have."

"Then she deserves the highest honors which we can confer upon her," returned Loring; "our love and admiration—love for her womanhood, and admiration for her energy and spirit. What an influence such a creature has upon us! How they elevate and refine our feelings, causing us to look up and away at the ever-glorious future, instead of bowing in gloomy melancholy over the wretched past. What a pity she is not poor!"

"Why so?" asked Mr. Linden, with a smile.

"Because, then she would marry a man poor but ambitious, and the two together would carve out a noble fortune."

"The mere fact that she is wealthy," returned Mr. Linden, "would not deter her from marrying a poor man if she found one that suited her. Yet I think she is somewhat fastidious in her choice, for many of the young men in the neighborhood have knelt at her feet and sued in vain."

"There is a chance for you," said Gloner, "so put your best foot forward and win her. You are ambitious, energetic, and independent; three things that will go far toward commanding her esteem and winning her favor, else I am no judge of her character."

Loring did not reply, but sipped his wine in silence. Could it be that a vision of future bliss shaped itself before his mind—such a vision as will come to gladden the heart of the low-born peasant, as well as the prince of royal blood? If it did exist it was blotted out by Mr. Linden's simple announcement, "The ladies are waiting."

In a few moments they were off; for, as Loring truly remarked, Miss Corneil had an influence—in her presence everything was done expeditiously.

"I see the secret of her superior management already," remarked Gloner aside to Loring when they were mounted. "It is the principle of modern go-ahead-a-tiveness that she infuses in everything with which she comes in contact."

It took them only an hour to make the round of the plantation, and during that hour they saw more, and Gloner learned more, than in the two hours of the morning.

"This is my remedy for dispelling the drowsiness and languor that ever follows a hearty meal, and I have always found it infallible," said Miss Corneil. "Most persons prefer a *siesta* after dinner, but I prefer a good horse and a hard gallop. It infuses a new lease of life in every drop of one's blood. If it was more universally adopted, we would have fewer pale wall-flowers in the domestic conservatory."

As they neared the house on their return, Mr. Linden left them, to visit the negro quarters, when Miss Corneil proposed a race. "Come, Lucy," she exclaimed, "it will do you good. That oak, a quarter of a mile away, is the winning post. A box of gloves to the lady—"

"And a box of cigars to the gentleman who wins," cried Loring.

"Good!" she cried. "Now, Bess, do your duty," and with her dainty riding whip she gave her one cut, when the intelligent little animal was off like a shot, followed close by Loring. It was a broad, smooth road, and they fairly flew over it. For a couple of hundred yards Loring gained slightly, then Miss Corneil drew the rein tighter, spoke to her horse, and she shot ahead, reached the oak, and was drawing up beyond, when Loring flew past at the top of his speed.

"We have passed the winning post," she cried, but he paid no heed to her. "He has lost control of his horse," she added. "Sure enough; I see now it is Mr. Linden's Thunderbolt he is riding. Come, Bess—come!" and she dashed after him, while Lucy and Gloner reined up at the oak.

For three-quarters of a mile further Loring rode at the top of his speed—and it was a fearful speed too—more like flying than aught else, as he afterward expressed it. He was an excellent rider, thanks to the livery stables of Mobile and Montgomery, and he sat firmly in his saddle, and held a tight rein, else his prospect for coming out of the race at all would have been a poor one. At the end of a mile from the starting point, however, he felt his horse slacken his pace somewhat, and at the end of a hundred yards further he succeeded in stopping him, when, on turning, he beheld Miss Corneil by his side.

"Do not laugh at me," he said, "for I confess I could not rein up my horse at your oak." And, woman-like, she did laugh, making the woods echo with her merry peals.

"Forgive me," she said, "for I cannot help laughing, now that you are safe. Yet you need not feel the least mortified, for when you passed me I discovered that you were mounted on Mr. Linden's old race-horse Thunderbolt, and no wonder you could not stop him. I doubt if the best horseman in the State could have done it under the circumstances, for he is a mile horse, and five years ago nothing in this part of the country could beat him. I did not notice what you were riding, else I would not have proposed the race."

"Then you won the gloves in the quarter race, but I won my cigars in the mile," replied Loring, laughing.

"Very well," she replied; "but let us return, or Lucy will think something serious has happened."

"But not at the speed with which we came," he said, "for I do not care about Thunderbolt going another mile at that rate."

They soon met Lucy and Gloner, who were riding on slowly after them, when they all returned to the house in the best of humor, and all laughing heartily over the result of the race.

"When I reached the quarter stretch," exclaimed

Loring, "the harder I pulled, the faster he went; so I wisely let him go, although I must say I felt vexed at the thought of what a ridiculous figure I cut, letting a horse run away with me, and beaten by a lady, too."

It was nearly dark when they reached the house, and most of the brief evening was passed in the library and billiard room, where Miss Corneil proved herself an excellent billiard player, after which she beat Loring at a game of chess, while Lucy and Gloner discussed and criticised the various authors whose works they chanced to pick up, and compared notes on the current literature of the day, in which, strange to say, they both coincided to a remarkable degree.

"Thus far, this visit promises to be the most delightful of my life," exclaimed Loring, when they reached their room. "Let us smoke a cigar before retiring, for I confess that I am too excited to sleep. Life is too happy, and the sense of living is too blissful just now to forget it all in slumber. What charming creatures they both are," he continued, as they seated themselves at the open windows, and inhaled the soft night air that stole up to them laden with the rich perfume of the flowers beneath; "and yet how different! Which do you admire the most?"

"They are both admirable in their way," replied Gloner. "I am naturally quiet and retiring in my disposition, and of course it is but natural that I should admire Lucy the most. She is so artless, so dependent, so warm-hearted, that it needs but a glance from her dove-like eyes to kindle a flame of love in a lonely heart like mine. Upon the other hand, you are more of the world than I am—fonder of its bustle, its activity, and its busy life—consequently, Miss Corneil, with her dashing grace and daring, active spirit, is more congenial to you. There is a prize there, and if you have the spirit I think you have, you can win it."

"There is but one serious obstacle in the way," replied Loring, "and I cannot read her character well enough yet to decide whether it is a serious one or not."

"And that is—"

"That I am a mechanic."

"Exactly. That obstacle is the veriest mole-hill. Suppose she should refuse your suit on that ground, what would you think of her?"

"I would pass her by with the contempt she deserved, and forget her, only regretting that a casket so beautiful should contain a gem so worthless."

"Certainly; you would not have that independence which I know you to possess if you did not. Now mark me. I am a closer observer of character than you are, and I have read hers, and will wager my reputation that I am right. The fact that you are a mechanic will rather prepossess you in her favor than otherwise, for she honors any man who is dependent only on his own right arm for support. She already knows you are a mechanic, for I told her so this evening, and I know that she respects you as a gentleman. It depends upon yourself whether you cannot change that respect to love."

Loring replied not, but for an hour they sat thus, each busy with his own thoughts—such thoughts as will come like a blissful dream to the quiet sleep of innocence, shedding sunlight around, and scattering roses in our pathway—a pathway that leads to the perfect realization of our most sanguine hopes in the glorious future, when we have youth and love to gild the picture with their artistic touches of gold and azure. (*To be continued.*)

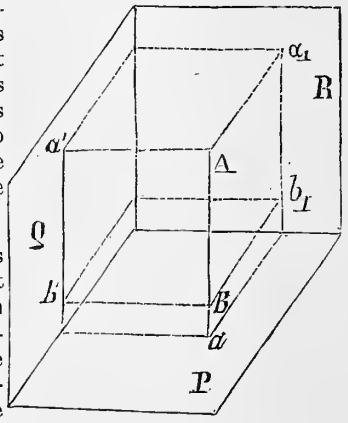
TREATISE ON THE WOODWORK OF CARRIAGES.

(*Continued from page* 83.)

L. PROJECTIONS OF A STRAIGHT LINE.—The projections of a straight line in space are determined by the projections of the two points of its extremities; by joining those points by a straight line in each plane, the result will be the projections of the line in space.

The projection of a line A B in space, perpendicular to one of the planes of projection P (Fig. 32), is reduced to a single point a on that plane. In this case the two projections a' b', a_1 b_1, on the two other planes Q and R, are equal and parallel to the original straight line.

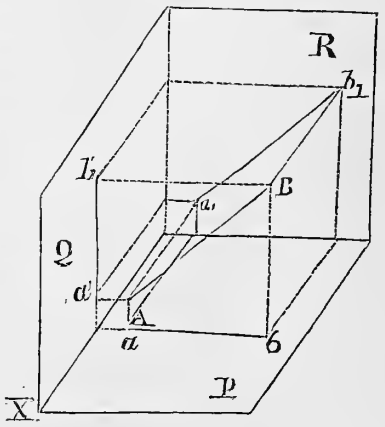
Fig 32



LI. The projections of two parallel straight lines are parallel in each plane of projection. Suppose the case where the two lines are perpendicular to one of the planes of projection—for instance, to the horizontal plane: their projections in each of the other two planes are vertical lines, which, like the original straight lines, are all perpendicular to the horizontal plane, and consequently parallel to each other. In that case, not only would the projections of two lines be parallel on each of the vertical planes, but they are all parallel to each other; this is a feature peculiar to vertical lines.

But if the original parallel lines were horizontal or inclined, their projections would only be parallel to each plane of projection, that is, unless they were horizontal and parallel to one of the two vertical planes. In that case, the projections on that plane, on the horizontal plane, and the original lines, would all be parallel.

Fig. 33



LII. An inclined line A B in space, bearing on two planes of projection P and Q (Fig. 33), gives two projections a b, a' b', on those two planes, both shorter than the original line. If the line A B is parallel to the third plane R, its projection a_1 b_1 in that plane will be both equal and parallel.

Fig 34

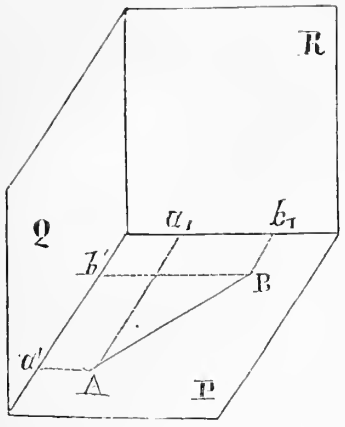


Fig. 35

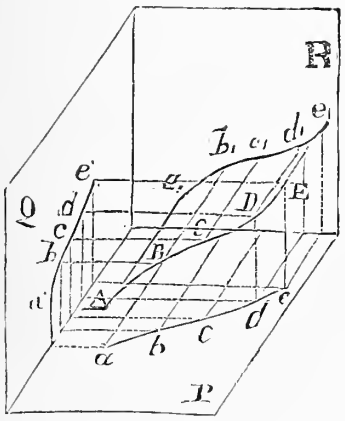
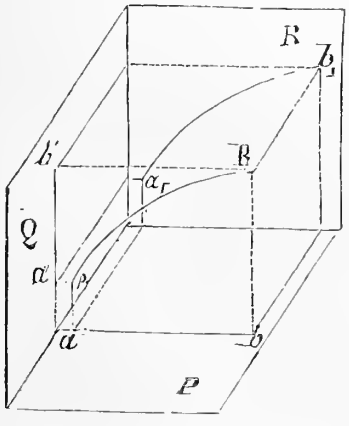


Fig. 36



When a line A B (Fig. 34) is entirely included within one of the planes of projection P, it is confounded with its projection in that plane, and is projected on the other planes in $a' b'$, $a_1 b_1$, along the ground line in each plane.

LIII. Projections of a Curve.—The projection of a curve in space A E (Fig. 35) is obtained by projecting various points A B C D E, forming part of that curve in each plane of projection, sufficient in number to indicate the boundary of the projections of the curve. By joining the various points thus obtained in each plane by a line, it must follow that each line $a\ b\ c\ d\ e$, $a' b' c' d' e'$, $a_1\ b_1\ c_1\ d_1\ e_1$, give exactly the projection of all the points of the original curve in the plane on which it falls.

When a curve in space A B (Fig. 36) is parallel to one of the planes of projection R, its projection $a_1\ b_1$ in that plane is both equal and parallel to it, and its projection $a\ b$, $a\ b$, in each of the other planes P and Q, is a straight line.

Where a curve A B is entirely comprised within one of the planes of projection P (Fig. 37), it is projected on the other planes Q and R, along the ground line $a' b'$, $a_1 b_1$, in each plane.

LIV. Projections of Surfaces.—Surfaces being bounded by lines, their projections are formed of the projections of the lines by which they are bound. The surfaces inclosed within the projected lines are consequently the projections of the original surfaces. This simple indication suffices for the projection of all kinds of surfaces. Nevertheless, as plane surfaces are of great importance in the system of projections, because they serve to solve all the operations, we will give the projections of that species of surfaces.

Fig. 37

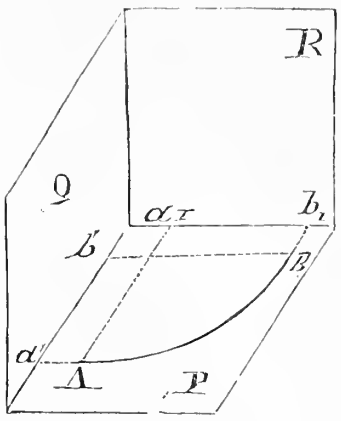


Fig. 38

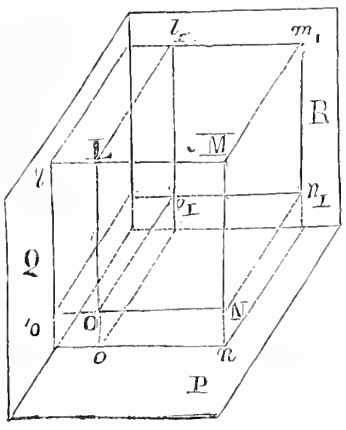
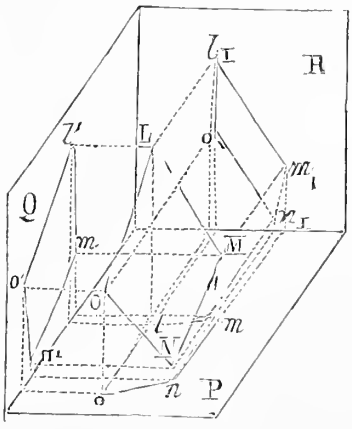


Fig. 39.



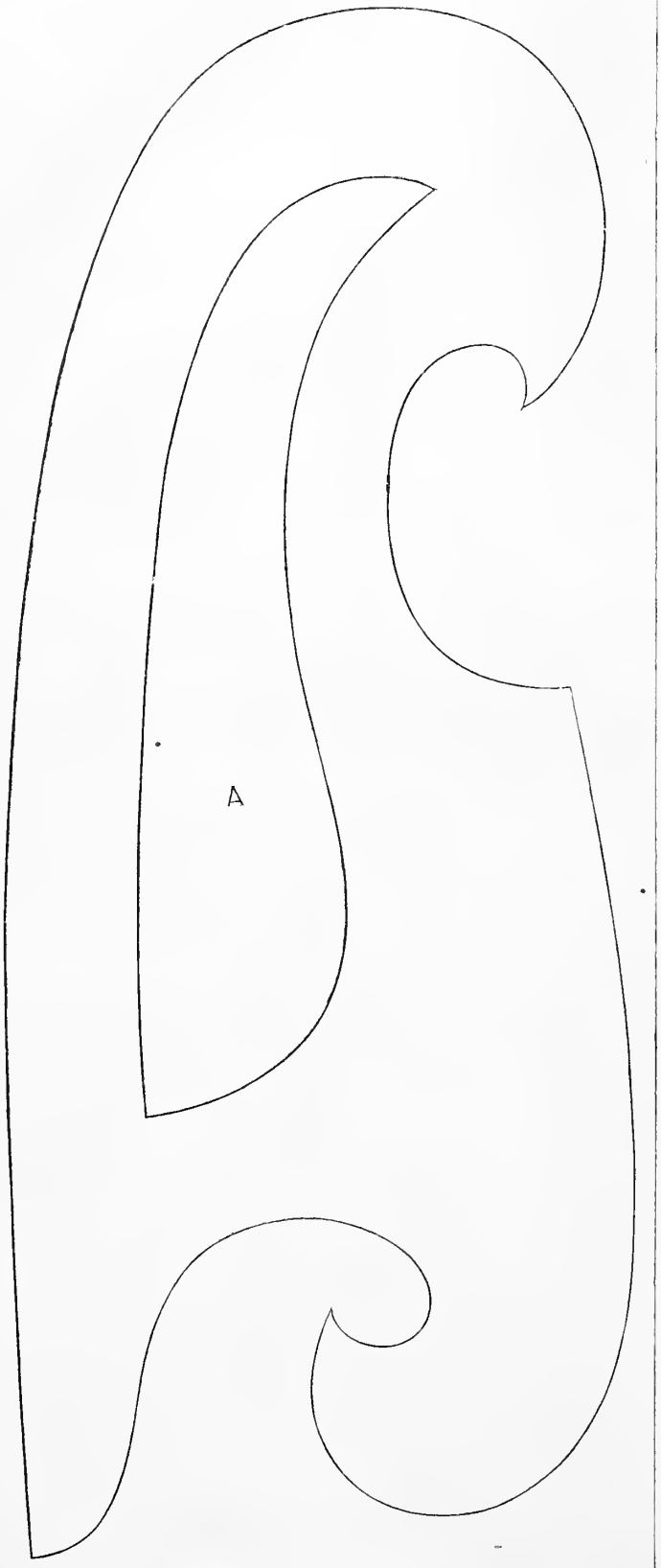
LV. Projections of Plane Surfaces.—The projections of a plane surface L M N O (Fig. 38), perpendicular to two planes of projection P and Q, are expressed on those two planes by two lines on $l\ o'$. In that case the surface L M N O being parallel to the auxiliary plane R, is projected on that plane by a surface $l\ m_1\ n_1\ o$, which is both equal and parallel to it.

The projections in space of a plane surface L M N O (Fig. 39), oblique to the planes of projection, are expressed by the surfaces $l\ m\ n\ o$, $l\ m'\ n'\ o'$, $l_1\ m_1\ n_1\ o_1$, on each plane P Q R, on a smaller scale than the original surface.

LVI. The projections of the different frames of a body will give on the faces dressed by the plane analogous projections to those just proved; when it is required to determine the size of those surfaces their plane is supposed to be prolonged to the planes of projection.

(To be continued.)

A Curiosity.—In a forest tree lately cut down in Wisconsin was found an Indian arrow-head completely imbedded and grown over. It appears from counting the layers of wood over it, that ninety years have elapsed since the arrow which it tipped was shot at the tree.



SWEEP FOR SCALE DRAFTING.

SWEEPS FOR SCALE DRAFTING.—VIII.

WE give our readers, this month, another in our series of sweeps for scale drafting. The mode of transferring it to the veneer, and preparing the same for use will be found at page 5 of this volume.

Home Circle.

BABY'S STOCKING.

HANG up the baby's stocking,
Be sure you don't forget!
The dear little dimpled darling!
She ne'er saw Christmas yet.
But I've told her all about it,
And she opened her big blue eyes,
And I'm sure she understood me,
She looked so funny and wise.

Dear, dear! what a tiny stocking!
It doesn't take much to hold
Such little pink toes as baby's
Away from the frost and cold.
But then for the baby's Christmas
It never will do at all;
Why, Santa Claus wouldn't be looking
For anything half so small.

I know what we'll do for the baby;
I've thought of the very best plan;
I'll borrow a stocking of grandma—
The longest that ever I can.
And you'll hang it by mine, dear mother,
Right here in the corner, so,
And write a letter to Santa,
And fasten it on to the toe.

Write, "This is the baby's stocking
That hangs in the corner here;
You never have seen her, Santa,
For she only came this year;
But she's just the blessedest baby,
And now, before you go,
Just cram her stocking with goodies
From the top clear down to the toe."

WINTER RAMBLINGS IN KENTUCKY.

BY PORTE PENCIL.

(*Continued from page* 87.)

THIS brought into play the deep voice of my guide, and the alto tones of the little negroes: "You Jowler!" "Come out dah, you Venter!" "Git out, you Bowman, you rascal, you!" Under cover of this volley the bipeds rushed to the attack, and, by force of some good blows, the enemy was routed, *horse, foot, and dragoons*, the cries of the wounded mingling with shouts of the victors. This unwonted clamor had brought to the doors all the inmates of the houses, and I became the cynosure of all eyes. My guide conducted me to the entrance of his own habitation, and politely invited me to walk in. Scarcely had we crossed the threshold, when a female voice from an inner room inquired, "Who dat?" My host, "on hospitable cares intent," answered not, when the voice was heard again, in a higher tone, "You Polly, who dat come in dah?" The little girl to whom this seemed to be addressed, made no reply, but gliding silently into the room from which the

voice had come, the hitherto concealed speaker made her appearance. "Sarvant, sir," said she, making a low courtesy, and evidently much confused, "I did thought t'was one of the men."

"Polly," said my guide, looking around for the little girl; but Polly was gone, to tell, doubtless, the news. "Whah Polly? She done gone out."

"The gentleman want some water. Tell her to git the piggin—run to spring torecly."

The woman went, and I heard her voice, shrill and loud—"Oh! Polly?" and then, dwelling long upon the interjection, "Oh!—!—! Polly? Na-an, Oh!—!—! Polly?"

"Here me, mammy."

"Here, gal; make 'ast an' fetch a piggin o' water. Run every step o' the way; you hear? An' min' you don't fall down an' spill the water."

"My good woman," said I, as she entered the house, "my walk has made me somewhat hungry; can you give me anything to eat?"

"I reckon, master, I am got nothin' you kin eat; but if you'll wait till I run up to the gret 'ouse, I'll git somethin'."

"It is scarcely worth while to take that trouble," said I, anxious to see how they were provided with food. "What have you in the house?"

"The gentleman too hongry to wait, Nanny," said her husband. "You git the sifter an' siff some meal, whell I go to hen 'ouse an' git some *aggs*."

"Dah's taters," said the woman.

"Sho' 'nough. You Polly," said he to the girl, who just entered, dripping like a water-nymph, having in her haste spilt a good quantity of the water upon herself—"you Polly, jump down in the tater-hole, an' git out some taters."

The girl lifted two or three thick planks, bored with many holes, which, with six or eight others like them, occupied the centre of the floor, and in a moment disappeared in the dark cavity beneath, the existence of which I had not until that moment suspected.

"Which sort you want, daddy?"

"Which sort you love bes', master; brimstone or moodus?" Being puzzled, I desired him to choose for me.

"Han' out de brimstone, gal."

Whilst my lunch was in preparation, I employed myself in surveying the room. The chimney occupied one entire end of the house—that is to say, was about fifteen feet in width. In the middle of this was the fire, leaving room on either side for seats. Opposite to each other were two small windows, or "light holes," as the negroes sometimes call them, each having a shelf beneath it. The two corners most remote from the fire-place were occupied, one by a little table, with a small triangular cupboard nailed above it to the wall; the other by a hominy mortar. Behind the door a very small shelf supported the good man's razors, etc.; and just above this depended from a nail a very irregular polygon of looking-glass, fitted into a piece of bark by way of frame. Near the fire stood, on one side, a bedstead and bed, and on the other a spinning-wheel. A short ladder in one corner terminated at a square hole in the ceiling, and formed a communication with the loft, which is used as a store-house for broom-corn, shuck mats, etc. It may be necessary to explain that "shuck" is a name here given to the husk that envelopes the ear of the Indian corn, and of which the negroes make mats, chair-bottoms, and even horse-collars, for sale. High on the wall hung some half dozen dry, inflated bladders, and many festoons of red peppers and capsicum. The family contained one individual not yet named, *videlicet*, the pig, who seemed to pass in and out just as his own humor dictated, liable, nevertheless, to an occasional cuff whenever his nose was detected in unlawful places. A little cross-legged table was put before me, upon which were spread fried eggs, sweet potatoes roasted in hot ashes, bread baked upon a hoe (a kind of griddle), and a plate of honey. I found no difficulty in doing justice to this display of hospitality, and was just finishing my demonstration, when Squire W—— came in. After some conversation with me, he turned to my host: "Tom, here are a dollar and three bits; the money Wilcox owed you for chickens. I deducted it from the price of the work he did for me. If I had not owed him, you would never have been able to get it from him. He wishes to buy your bacon. You will have sense enough, I hope, not to place yourself again in his power; not to sell him your bacon on credit?"

"Thank'ee, master; I ain' gwine le'm have it, no how."

After giving some directions about his fences, W—— inquired of Nanny concerning her sister's health.

"She mighty weak to-day, sir, I thank you."

"What does she complain of?"

"She thinks it's the rheumatis. Not so; she's cotch a vi'lent cold, an' ole Aunt Molly, whah most in gin'ral stays with her when sick, was 'blice to lef her to-day, caze Big Tom's wife, as is bin gruntin' nigh upon a week, was tooken very sudden this mawnin."

"Tell Polly to send to the house for any thing that may be required."

"Yes, sir; but misses is bin down a'ready an' fotch every thing."

I find it impossible to give on paper a just idea of their manner of pronouncing many words. Indeed, the same word comes in many different shapes from the same mouths. Those in which *th* occurs, are particularly liable to mutation. Take, for example, the word *there*. Besides the correct pronunciation, which they sometimes give it, we have "thah," and "dah," and "deyah." The variations of *that* are "dat" and "at." They seem to have an especial dislike to the use of the letter *r*, and scarcely ever sound it but at the beginning of words. Feeling disposed to witness a corn-shucking, I left the house, and, guided by a negro boy, was placed at my request in a situation from which I could see and hear all that was going on, myself unseen.

About eighty or a hundred men were seated around a huge heap of corn, tearing off the husk, and throwing off the denuded ears into spots where they were at once separated from the corn pile, so called *par excellence*, and convenient to the operators. On the summit of the pile sat an ancient negro, selected for his skill in improvisation, who gave out a line in a sort of rapid chant, at the end of which the whole party joined in a chorus. The poet seemed to have no fixed object in view but to sing. He passed from one subject to another without regard to connection. I have retained in memory the following lines, which may serve to give some idea of their style of composition. They seldom use the sign of the possessive case:

"Oh, Jenny gone to Newtown!
Chorus—Oh, Jenny gone away!
She went because she would n't stay.
Oh, Jenny gone away!
She run'd away, an' I know why,
Oh, Jenny, &c.

For she went a'ter Jones' Bob.
Oh, Jenny, &c.
Mr. Norton, good ole man;
Oh, Jenny, &c.
Treated his niggers mighty well,
Oh, Jenny, &c.
Young Tim Barrett no great thing,
Oh, Jenny, &c.
Never said, Come, take a dram.
Oh, Jenny, &c.
Ole Master gi's plenty meat,
Oh, Jenny, &c.
Mighty apt to fo'get the drink,
Oh, Jenny, &c.

After running on in this way for ten or fifteen minutes, any one of the company who may be so disposed, strikes in at the top of his voice with a new tune. The hint is not lost on the leader, who immediately adapts, as well as he can, his words to the air, if such it may be called, and moves on with perfect readiness in the same rambling style, regardless of both rhyme and metre. By the by, it is amusing to see how they get over any difficulty about adapting their unequal lines to the tune. The latter is a bed of Procrustes. If the verse be too short, some word is dwelt upon until the measure of time is filled; if there be more than enough, the redundant syllables, sometimes to the number of three or four, are run rapidly through upon one note.

An old negro regulated the movements of the jug, but the vigilance of "Uncle Abraham" could not entirely prevent excess, as was manifested by an occasional burst of wild shrieks from some of the party. The shucking continued until about eleven o'clock, at which time they all retired to a very plentiful repast; and I could not perceive next morning that their exertions, either in singing or drinking, had done much damage. They were all arrayed in their best, clean and cheerful. Negroes are the most uncompromising aristocrats in creation. For a "gentleman" they entertain the profoundest respect; with a far different eye, however, do they regard those whom they term "po' white folks." For these they feel a perfect contempt, which extends itself to the second and third generation. If, by good fortune or successful exertion, one of this class has placed himself in a more elevated position in society, and should he by any means offend one of the former slaves, his remark is—"'Tain' no mo' an any body could 'spec. He larnt it when he was gravellin' taters fo' his daddy's dinner. He ain' nobody but ole Jack Smith's son, whah used to tote taters about to sell, an' now he puts on all dese ars! Ef my skin wa'nt black, I'd make a better gent'man an' he is. Ef I wa'nt no better off 'an his daddy was I'd agree to be drownded. He owned only free or four nigga's, and worked 'em to deff—po' white trash!"

Their attachment to the families in which they have been born and raised, and formerly owned, in many cases is truly surprising. Any good or evil which happens to "Master," "Missus," "Mass Henry," or any of "de children," excites or depresses as though it were their own. It is at this time often the case that the more careful among them, by leasing their former "Masters'" plantations, accumulate a number of luxuries, and keep on hand a stock of money. I inquired of a former slave if he was sometimes whipped. He drew himself up, obviously something wroth: "No, sir; nobody ever totch *my* back, sir, excep' my daddy an' mammy, when I was a little shaver about knee-high."

I have lost no opportunity of observing the relations which now exist here, between the former master and slave. Profound respect on one part is most generally met by kindly consideration on the other; and protection and dependence here, as elsewhere, beget confidence and affection.

(*To be continued.*)

Pen Illustrations of the Drafts.

PARK PHAETON.

Illustrated on Plate XXV.

OUR phaeton, in this instance, is mounted on elliptic and scroll springs. The body—original in design—has a decidedly light and graceful appearance, obtained in a great measure by adopting a bob coupé front pillar, thereby obviating the necessity of a heavy front quarter in getting a proper sweep for the under side of the boot. The horizontal finish on the side of the body, above the crest, is set-off with a three-eighths-inch chamfered molding. This and the other moldings should be painted in color differing in shade from that of the panel. The width of the body at the front of the back seat should be 50 inches in the clear; axles $1\frac{1}{4}$ inches; wheels 3 feet 6 inches and 4 feet 2 inches high; hubs $4\frac{1}{2}$ by 7 inches; spokes $1\frac{1}{8}$ inches; rims $1\frac{1}{4}$ deep; tire $\frac{5}{16}$ by $1\frac{1}{8}$ inches.

Painting.—Black, blue, or brown ground colors, with a broad stripe for the under-carriage, covered with two narrow ones of different shades.

Trimming.—Fine satin.

Workman's charge for building the body about $75. Manufacturer's price for the phaeton, handsomely finished, from $1,300 to $1,500.

NEW YORK CHARGES FOR REPAIRING.—*Wood-work:* new hub in wheel, $5; new spoke, $1; new rimming, $20; half-rim, $2.75; drafting-wheels, per set, $1; carved spring-bed, $10; bolster, $8; carved back spring-bar, $8; pole, $9; yoke, $7.50. *Iron-work:* carriage bolts, each 30c.; tire bolts, 50c.; new iron tires and bolts, $35; resetting tires, $8.25; wheels boxed, tired, and painted, $90; resetting set axles, $10 to 12; washing and oiling axles, $2. *Trimming:* Head-lining, $55; leather top, $55. *Painting:* cleaning and japaning lamps, $6; burning off old paint and repainting body and carriage part, $1.50 @ $2.25, according to style of carriage; coloring and varnishing body, painting and striping rims, and varnishing carriage part, $100. *Plating:* capping four axle nuts, $6; capping set of top nuts (silver), $3.50; new set silver bands, $7; door handles, $6 @ $12.

EXCELSIOR VICTORIA PHAETON.

Illustrated on Plate XXVI.

WE think it would be a difficult matter to make a handsomer design than the one furnished by our artist for this plate. It possesses the three very desirable qualities

for a carriage—lightness, gracefulness, and symmetry. Width of the body (in the clear) 48 inches, measured between the front pillars; axles 1⅛ inches; wheels 3 feet 3 inches and 4 feet 2 inches; hubs 4 by 7 inches; spokes 1⅛ inches; rims 1⅛ inches; tires 1 by ¼ inches.

Painting.—English patent black for body and carriage part; stripe under-carriage in broad line purple, covered with two narrow ones near the edges, blue or black.

Trimming.—Blue satin.

Workman's charge for building the body, $60. Manufacturer's price for well-finished vehicle, $1,200.

New York Charges for Repairing.—*Wood-work:* new hub in wheel, 8; spoke, $1; rimming wheels, $20; drafting, $1; carved spring-bed, $10; bolster, $8; carved back spring-bar, with center figure, $15; pole, $9; yoke, $9. *Iron-work:* carriage-bolts, 30c.; tire-bolts, 25c.; bolts and new tires (iron), $30; resetting tires, $10; resetting an axle-arm, $4; new washers and oiling axles, $2. *Trimming:* new leather top and head-lining, $100. *Painting:* burning off old paint and repainting body and carriage part, $90; retouching up body and carriage, and varnishing all, $40; capping axle-nuts, $6; capping prop-nuts, $3.50; new bands, $4.

COUPE-PILLARED SIX-SEAT ROCKAWAY.

Illustrated on Plate XXVII.

In this drawing our artist has combined several features peculiar to other vehicles, not hitherto applied to rockaways, with marked success. First, we have the coupé front-pillar; next, the turnover front seat, to which is attached the Germantown foot-board, with other original features strikingly novel. Width of body 48 inches; wheels 3 feet 9 inches and 4 feet; hubs 4 by 7 inches; spokes 1⅛ inches; rims 1¼ inches; tires 1⅛ by $\frac{5}{16}$.

Painting.—Body brown, carriage part brown, striped.

Trimming.—Blue cloth.

Workman's charges for building body, $65. Manufacturer's charges for carriage complete, $750.

New York Charges for Repairing.—*Iron-work:* new tires and bolts, $26; resetting tires, $7; drafting wheels, 75c.; tire bolts, 10c. each. *Wood-work:* hub, $5; spoke, 75c.; axle-bed, $3.50; perch, $4.50; spring-bar, $2; shaft-bar, $1.75; shaft, $4; pair shaft tips, $2; retrimming shafts, $4.25; pole, $6; head-block, $3; new set of wheels complete, $75; leather washers, $1.25; resetting axles, $6; covering glass frames, $3.50; burning off old paint and repainting, $100; coloring and varnishing body and carriage part, striping, &c., $75.

NONPAREIL TOP BUGGY.

Illustrated on Plate XXVIII.

This beautiful design will, doubtless, commend itself to our readers, and meet with favor from customers. The sham-pillar, slats and scroll-work on the sides should all be raised work in molding three-eighths of an inch, the outer edges chamfered down to three-sixteenths of an inch. Wheels 3 feet 10 inches and 4 feet 1 inch high; hubs 3½ by 6½ inches; spokes 1 inch; rims 1⅛ inches; steel tires 1 by ⅜ inch.

Painting.—Brown, stripe on carriage part three fine lines, center white, two outside crimson.

Trimming.—Blue broad cloth, edged with patent leather, and ornamented in front of cushions and falls with raised figures concealed beneath the cloth.

Workman's wages for making the body, $18; carriage part, $8; wheels, $10; shafts, $3.50; spring-bars, $6. Price of buggy, finely finished, $465.

New York Charges for Repairing.—*Wood-work:* new set of wheels, $8; hub, $5; spoke, $1; rims, $16; drafting wheels, 75c.; shaft-bar, $2; new shaft, $4; spring-bar, $2; axle-bed, $4; perch, $5; head-block, $3; new bow in top, $6. *Iron-work:* resetting tires, $8; set iron tires, including bolts, $20; tire-bolts, each, 25c.; carriage-bolts, 50c. each; new spring, $15; fifth wheel, $5; resetting axles, $6. *Trimming:* leathering shafts, $7; new top, $125; new body-linings, $40; whip-socket with patent fastenings, $3; covering dash, $12; cleaning top and oiling, $2.25. *Painting:* repainting complete, $75; touching-up and varnishing, $35.

Sparks from the Anvil.

SHARPENING FILES WITHOUT RE-CUTTING.

A new process in sharpening files has been invented by M. Werdermann, of Paris. We have heretofore described different modes of doing this in what has been called an economical way, without resorting to re-cutting, but have had very little faith in them. This, however, appears to merit more than an ordinary consideration. In this operation M. Werdermann takes well-worn files from the shops and cleans them carefully in hot soda and water. After this they are placed in connection with the positive pole of a battery, in a bath composed of forty parts of sulphuric acid, eighty parts of nitric acid, and a thousand parts water. The negative pole is formed of a copper spiral surrounding the files, but not touching them; the coil terminates in a wire which rises toward the surface. This arrangement is the result of practical experience.

When the files have been in the bath ten minutes, they are then taken out and afterward washed clean, and dried, when it will be seen that the channels or hollows originally formed by cutting have been attacked in a very sensible manner; but should the effect not be sufficiently operative, the same operation as before may be repeated. Sometimes two operations may be necessary, but not always. The files *re-cut* in this manner look very much like new ones, and are said to be good for a week's work, which, if true, makes them better than most of the new ones offered for sale in the shops, nowadays.

ATTACHING STEPS TO CARRIAGE BODIES.

There are some instances in which it is exceedingly difficult, although absolutely necessary, that a carriage-step should be firmly secured to the body to render it useful. We have an example in Fig. 1 of this kind,

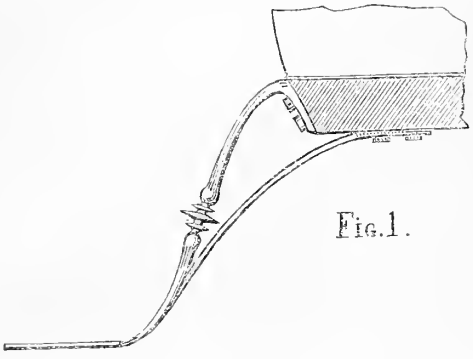


Fig. 1.

where the step is secured to the concave rocker by wood screws very effectively.

Fig. 1 shows an end view of a stationary step.

Fig. 2 is a side view of the same step.

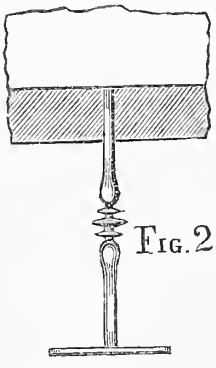


Fig. 2

Next month we design to give a new pattern for a Brett step, showing a novel mode of trimming the same.

STEEL SPRINGS.

Rule 1st. To find elasticity of a given steel-plate spring: Breadth of plate in inches multiplied by cube of the thickness in 1-16 inch, and by number of plates; divide cube of span in inches by product so found, and multiply by 1.66. Result, equal elasticity in 1-16th of an inch per ton of load.

Rule 2d. To find span due to a given elasticity, and number and size of plate: Multiply elasticity in sixteenths per ton, by breadth of plate in inches, and divide by cube of the thickness in inches, and by the number of plates; divide by 1.66, and find cube root of the quotient. Result, equal span in inches.

Rule 3d. To find number of plates due to a given elasticity, span, and size of plates: Multiply the cube of the span in inches by 1.66; multiply the elasticity in sixteenths by the breadth of the plate in inches, and by the cube of the thickness in sixteenths; divide the former product by the latter. The quotient is the number of plates.

Rule 4th. To find working strength of a given steel plate spring: Multiply the breadth of place in inches by the square of the thickness in sixteenths, and by the number of plates; multiply, also, the working span in inches by 11.3; divide the former product by the latter. Result, equal working strength in tons burden.

Rule 5th. To find span due to a given strength and number, and size of plate: Multiply the breadth of plate in inches by the square of the thickness in sixteenths, and by the number of plates; multiply, also, the strength in tons by 11.3, divide the former product by the latter. Result, equal working span in inches.

Rule 6th. To find the number of plates due to a given strength, span, and size of plate: Multiply the strength in tons by span in inches, and divide by 11.3; multiply, also, the breadth of plate in inches by the square of the thickness in sixteenths; divide the former product by the latter. Result, equal number of plates.

The span is that due to the form of the spring loaded. Extra thick plates must be replaced by an equivalent number of plates of the ruling thickness, before applying the rule. To find this, multiply the number of extra plates by the square of their thickness, and divide by the square of the ruling thickness; conversely, the number of plates of the ruling thickness to be removed for a given number of extra plates, may be found in the same way. —*Scientific American.*

Paint Room.

CARRIAGE VARNISHING ROOMS.

We remember the time when nearly all the varnish spread on carriages was expected to dry in the open air, and scarcely such a thing as a varnish-room existed in the whole land. Those days, however, have passed away, and manufacturers have come to think no establishment complete without a varnish-room attached thereto. This "institution" is particularly necessary since the introduction of the slow drying English varnish among us, which could not possibly be used without it. Even with the best constructed varnish-rooms, many mechanics find it a difficult job, even now, to turn out a *perfectly* well-varnished carriage. The workman who is expert in this business receives, as he deserves, good wages.

There are several desirable requisites in a varnish-room. If possible, let it front southward, and have the frontage and ends well supplied with glass. Some of the windows should be made to slide, to admit ventilation when necessary. The whole front should be screened from the sun in the hot summer days by a canvas curtain on the outside, which, when not in use, should be rolled up near the top, and protected from the weather by a broad roof, something after the manner of many awnings in our large cities.

The side walls of all varnish-rooms ought to be hard finished in plaster, and the ceilings of pine boards, grooved and tongued and well seasoned. This ceiling should be painted white, for obvious reasons. Nailing canvas, paper, &c., over head, will serve no better purpose than to gather dust, simply *to fall just when it is not wanted.* If old and dilapidated, as we have seen some varnish-rooms, the sooner it is "reconstructed" the better it will be for the owner.

No room, however perfect, should ever be used for

varnishing without first sweeping it out all over—ceiling, walls, and floor. After this is done—if not before—sprinkle the floor nicely with a watering-pot, and leave the room vacant for two hours at least, that the dust may become well settled. Finally, keep idlers out, choose a pleasant, still day, if possible, and begin your work with earnestness, as late in the day as will suffice to get through with the job.

DRYING OILS FOR VARNISH.

In a recent work on varnish, by Violette, he quotes as follows from a celebrated manufacturer: "The oil is allowed to stand in a reservoir of lead for one or two months, after which the upper three-quarters of it are drawn off to make drying oils for varnish, while the one-fourth remaining at the bottom of the tank can be sold to grind paints, it being utterly unfit for varnish-making. This settling of the oil is indispensable, in order to separate the mucilaginous impurities which all oil contains, and it is a precaution that should always be faithfully observed." After converting this oil into drying oil, he adds: "We always take the precaution to have five or six months' stock of this prepared oil in advance; after which time it is better, and gives a varnish with more body and more solid drying."

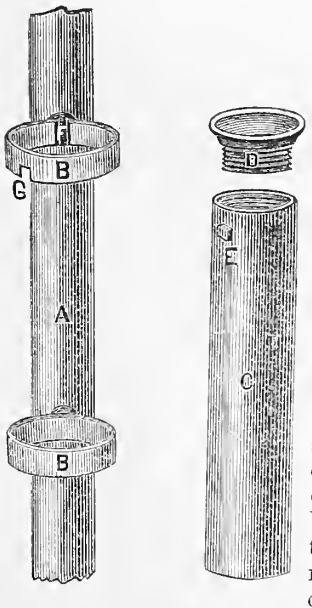
When, in addition to the above, it is remembered that the varnish must be kept six months after being made, in order to allow it to ripen, it may be seen that the capital required by some firms must be very large. It is by careful attention to the above points that the English manufacturers have attained their high reputation.

Trimming Room.

NEW WHIP-SOCKET.

TRANSLATED FROM "LE GUIDE DU CARROSSIER."

When Mr. Fourier came to show us the object of his invention, our wonder was this: how an application so simple and rational was so long in being introduced, particularly at a period when industrial property is so largely protected by patents.



The whip-socket is indispensable on every vehicle drawn by horses. But judging from the manner in which it has been fastened up to this day, it may be inferred that the manufacturer only thought of putting it on after the carriage was wholly finished. In fact, when we see the whip-socket attached with small stitched leather straps or hooks, either on the dash-board or skirt and belt of the dicky-seat, we could believe that the idea of attaching it came just at the moment of delivering the carriage.

The invention of Mr. Fourier consists: 1st. In the use of metal rings made stationary, either on the railing of the dash, or on an iron stay made expressly for it at any desirable place. 2d. In having the socket in two pieces; which makes it more solid, and allows of taking off. In this way the whip has firm hold, and can neither swing to the right nor left, taking the badly-affixed socket with it.

Our cut represents all the pieces of the invention. A is either a section of the railing of the dash board or a stay made for the purpose at any convenient point. B B are the metal rings holding the socket. These rings are secured by the aid of bolts, cut with screw ends. The socket consists of two pieces—the case C, and the head D. In putting on the socket, first pass the case C into the lower ring and next the upper, in such a manner that the nib E slides into the cut F, made in the upper ring. When the case is in its place, screw on the head D, and the case will be firmly held by the nib and the protecting top of the head.

To take Oil out of Leather.—A correspondent, Mr. A. D. Fisk, of Newark, N. J., answers a recent inquiry on the subject as follows: "In the factory where I am employed we use 4 *F. aqua ammoniæ*, which will take oil out without injury to the leather. It must be used two or three times in order to get it all out. First use it, and let the leather stand until more comes out, and apply again. This is the only thing that will take it out and not hurt the leather."

Editor's Work-bench.

TRADES-UNIONS AND POLITICS.

The advocates and promoters of trades-unionism have received much consolation from the idea that their organizations were of sufficient strength to enable them to carry their special nominees into the Assembly of Legislators for New York, whenever the experiment should be tried. The speakers in the interest of trades-unionism have taken great pains to impress upon the minds of their friends on all occasions, the fact that politicians could not be safely trusted by laboring men, and therefore such must be left out in the cold, while their own special representatives should march up to the capitol at Albany, and repeal the odious conspiracy law, which is now a terror to such as are disposed to stop, by physical force, a fellow-laborer from working, unless he does so on Union terms. In addition to this, the workingmen must have an apprenticeship law that will at once protect the employer and the employee. They must likewise have a law to give the laborer redress when his wages are delayed or refused, by at once attaching the work on which he is employed; and something must be done to prevent laborers from being crushed by carelessly-made machinery, without bringing the agents of the calamity to justice. All these things Nelson W. Young, the President of the Labor Unions, promised to do should he be elected.

Hear what Mr. Young said at a mass-meeting at the Cooper Institute, previous to the voting:

"GENTLEMEN: The workingmen of New York have placed in nomination men who will well represent them at Albany—on whom they can rely. These men will see that those laws which have been passed for your benefit, but have been most unwillingly and tardily enforced, shall be put into execution. They will demand the repeal of the conspiracy law, will see the eight-hour law enforced, and will demand an apprenticeship law that is so much needed. A few words I would say of myself. I do not desire the nomination which you have given me. But you needed a man who would call out a large vote, and I accepted the nomination. [How modest!] And now, although nearly all the organizations of all parties in the city have indorsed my name for the position, yet let me tell you that I am only a workingman's candidate for all that. [Oh ho!] Gentlemen, the working classes are in earnest. Be not surprised if you elect five or six Aldermen in December, or if you elect representatives to Washington even. Matters are being arranged that will not let our movement fail. It has been well considered, and must be a success; and then, gentlemen, proud may we be that we have rid the community of those scourges to its welfare, corrupt politicians."

One would suppose, after listening to Mr. Young and other rabid speakers on the occasion referred to, that all the crowd had to do, was to march up to the polls in a body, and the work would speedily be finished to the satisfaction of all those who earn their bread by the sweat of the brow; but, no, election came, and Mr. Young is still permitted to labor as heretofore at the shop, instead of beating the air at the capital, in the character of an orator. The gentleman, although polling a large vote, yet ran much behind his ticket, which goes to prove that workingmen do not even stick by their own candidates with becoming firmness, and consequently they are not likely very soon to "turn the world upside-down," however fearful capitalists may be of such a calamity.

THE R. M. STIVERS' TARGET EXCURSION.

THE morning of the 6th of November, the day selected by the employees of Rufus M. Stivers of this city for their first target-shooting festival, opened delightfully, when every man about the establishment—about eighty—donned his best and bid adieu to labor for the day, determined to enjoy himself in a rational manner. Headed by Capt. M. O'Connell, the gentlemanly foreman of the "paint shop," the "craft," at half-past eight A. M., formed line in front of the shop on Thirty-first street—as fine a set of men as we have seen together in a long time—plentifully supplied with flags and a beautiful banner, on which was painted a portrait of Mr. Stivers, and inscribed as follows: EMPLOYEES OF R. M. STIVERS, CARRIAGE MANUFACTURER.

At nine o'clock the line moved: first came two carriages filled with invited guests; next the men headed by a full band of music; the rear being brought up by a truck, on which was mounted a Stivers' buggy, and a rich supply of prizes, worth $600, the gift of numerous friends. After marching through various streets and showing themselves before the principal carriage shops of the city, the company took a street-car, specially assigned to their use, near the Cooper Institute, reaching Landmann's Hamilton Park, on the Third avenue at Sixty-ninth street, at noon; soon after which shooting began and continued for over two hours.

About half-past three P. M. the party, numbering some two hundred persons, including ladies, sat down to a sumptuous dinner, to which ample justice was done. Before rising, the following toasts and responses were given:

1*st Regular Toast.*—"Rufus M. Stivers, whose enterprising spirit is worthy of emulation, upright and persevering, just and liberal to his employees, with a laudable ambition to excel in business." (Three cheers for Mr. Stivers.)

To this Mr. Stivers, whose modesty is only surpassed by his mechanical ability, merely said: Fellow-workmen, I have very little to say, except to thank you for your kindness. After which he introduced his friend John H. Bird, Esq., who spoke as follows:

LADIES AND GENTLEMEN: The modesty of your employer gives me an additional duty to perform. I had expected, during the course of the dinner, to have acknowledged the pleasure I felt at receiving the invitation of your committee to be present at this delightful reunion between employer and employees; but I did not expect that the distrustful modesty of friend Stivers would have compelled me to express to you the swelling joy of his heart at meeting around this festive board so many of his brother mechanics, to whose stout blows, fine work, and continued fidelity for many years, he has been so much indebted for his present exalted position as a carriage manufacturer.

And I know, men, that I am depriving you of an expected pleasure when I take his place on this floor, and, in his stead, tell you what he feels to-night.

You would rather hear him in his good, honest manner, say to you, "Brother mechanics, I am glad to meet you here. I owe you everything. I will be true to you so long as you are true to me; and will remember to my dying hour that I owe position and fortune to my workmen." You would rather have had him say that than listen to the most brilliant orator in Christendom, and I am not that man.

But I am no stranger to you. I claim to be one of the family, and respectfully ask you to adopt me; and I promise to turn out on all future occasions of this kind as a consumer. I have long known your worthy employer, and it may not be uninteresting to you to have me, in a few brief words, sketch his past. He was born, at a very early period of his life, an inventive genius, and so was his father before him. Long before the down appeared upon his upper lip, Stivers' restless inventive faculties tried conclusions upon simplifying and improving the machinery of water-wheels, cider-mills, apple-peelers, and a multitude of other equally useful, necessary articles.

From the age of fifteen years to the present time he has pursued the art of a wagon-maker; and although, gentlemen, he says he can't make a *speech*, yet his brother-

workmen say he made in those days as good a *spoke* as the best of them.

With his heart in his trade, he studied all the intricacies of the business, determined to be a finished workman; and he early resolved, when he should reach man's estate, to have an establishment of his own, where only the best kind of work should be turned out, and the best kind of workmen employed. How well he has succeeded, the splendid establishment on Thirty-first street that now bears his name, and the numerous attendance here of his employees, will attest. In this land of ours, energy, perception, and integrity like his can no more be kept from reaching the goal of a deserved success, than you could confine ignited gunpowder in a tin canister.

But, men, his success would never have been achieved if he had not early recognized the necessity of selecting the very best workmen to fill the various departments of his art, and I understand there are many departments in your establishment. I reiterate that his ability, energy, and integrity would have found a stumbling-block, had he not surrounded himself with the skilled workmen that I see before me. That is so, is it not, sir? (Yes, it is.) Thanks to your help, and his own genius in his calling, I can say truly, for the great patronizing public is behind me, and authorized me to make the statement, that his work, for elegance and lightness of construction, symmetry, and durability, equals, if it does not surpass, that produced in this or any other country.

When I look around upon your happy, smiling faces, I see nothing of the antagonism that is said to exist between capital and labor. Friend Stivers' good fortune has made him, to some extent, a capitalist; but that has not lessened your respect for your old friend. All is harmony here. You strike hands together, and carry on your work in a reciprocal spirit.

I have witnessed the gradual growth of your establishment, from its humble beginning to its present giant proportions, and if my eyes do not greatly deceive me, I see before me men whom I met years ago in the old establishment. Am I right, sir? (You are.) Why, that must be between fifteen and eighteen years. A very long time, gentlemen, and reflects credit alike upon the employer and the employed. And it tells the tale. A good boss, and good, reliable men, must produce good work.

You should remember, men, that it is equally your duty to your employer, as it is his to the public, to have good work done. The result of your labor makes your employer's reputation; if you preserve that for him, he has plenty of work to give you to do, and the little mouths at home will never cry in vain for food.

If I were a mechanic, I think it would be my pride to try and turn out the very best kind of work. And further, I would not work for a boss who did not understand his business, and did bad work; for I would be afraid that as soon as the times came a little hard, slack would come the orders, and off go the hands.

You may not know, but really, to all intents and purposes, you are partners in your establishment, excepting that you are not liable to pay the debts, and must have your share of the profits every pay-day. I learn that it takes about $75,000 a year to pay your wages alone; and after that comes materials, rent, insurance, taxes, interest on capital invested, and a thousand other expenses, making it pre-eminently necessary for you to look to it that you work so well, and continue the good reputation of your establishment, so as to attract customers from a great distance, as well as from around your homes, in order that you may receive steady employment.

But I must conclude, as I am detaining you from your other pleasures.

I think these social gathering are good things, as you all meet here on a level, interchange friendly greetings, and on the morrow go back to the shop feeling that employer and employed are equally interested in producing fine work and maintaining harmonious relations. If, men, you are but true to yourselves, and true to your employer, you will not only keep up the splendid reputation of your establishment, but will turn out in the future such work as will not only excite the envy of all rival establishments, but will secure the admiration and patronage of the paying public.

In Mr. Stivers' name, I again thank you for your good conduct in the past, and hope to meet you next year with full ranks and such harmony as I have witnessed to-day.

2d Toast.—"The city of New York, the great cosmopolitan city of the world: may she be as prosperous in the future as in the past."

To this, Hon. L. D. Kiernan responded: "I am inclined to believe that my friend Bird must have been in Ireland, and kissed the blarney-stone, for his flow of words has struck the charm from my speech. I see from your appearance that you intend to carry out coach-making in a glorious manner. Although I cannot say much in praise of your markmanship, yet I think you *aim* to do right. It seems the captain intended by his shooting to carry off all the prizes himself. .... Target excursions are no modern inventions." After giving a brief history of the settlement of this city by the Dutch, and its progress since, Mr. K. expressed the hope that New York would in time surpass all other cities of the earth.

3d Toast.—"The carriage-makers of the city of New York; we greet you to-night as our brethren and honorable competitors."

To which J. W. Britton, Esq., of the firm of Brewster & Co., replied in substance, that he was happy to join in the festivities of the evening, and speaking for his firm he entertained no jealousies toward other carriage-makers, there being room enough for all. Mr. Corbett, of the firm of Corbett & Scharch, made a few remarks, after which followed the

4th Toast.—"Our guests; we are honored by their presence to-night." (Cheers.)

Music.—"Hail to the chief," &c.

5th Toast.—"The press of New York; the great power which molds public opinion throughout the nation."

Mr. John Nesbit, of *The Sun*, in response referred to the power of the press over the public mind in our late war; for when it had become discouraged by failures in battle, the press spoke out in encouraging tones that infused new energies into the national life.

6th Toast.—"The ladies; their soothing influence alleviates the hardships of labor."

No one responding, a gentleman present gave a song, "The Mechanic." A few voluntary toasts and a speech from the captain followed, and then the younger Mr. Stivers was called, in the hope that the "modesty" of the father was not inherent in the son. He, while declaring that modesty flowed in his blood, thanked the company for their good wishes, and hoped that when the business should

fall upon him, their aid would carry him up the hill of success, as it had his father before him.

In the distribution of the prizes—about fifty—it was found that only twenty-six men had pierced the target. Of these prizes the captain received $25; John Carroll, $20; F. Relphus, $15; A. Mineugh, coffee urn; J. Tilton and J. C. Dussel, each $15; J. Dowd, $10 (in gold); C. Miller and C. Huck, each a castor; J. Torthofer, A. Tastowski, Wm. Cooper, and Wm. Late, each an ice pitcher; J. Hollohan, P. Conners, J. Carhart, J. McGraw, G. Rudd, J. Casserly, A. Foley, J. Mintz, J. Ward, J. Baker, J. Black, C. Alfather, and J. Hull, each $10. After this there still remained eleven pieces and about $200 to be distributed by lot, every man carrying off a prize. The company, joined by many ladies, whiled away the evening, and at a late hour dispersed to their several homes, in the best humor with themselves and employer. In closing, we have to regret that want of space has compelled us to curtail some of the speeches, of which we had taken a full report.

CHINESE AS INVENTORS.

Although other nations have far outstripped the Chinese in carriage-making, yet to them belongs the honor of having led the way in many of the most remarkable inventions; and in many things anticipating us in the possession of some of those arts which constitute the boast of our modern civilization. Some of these we propose briefly to notice.

"China-ware" was manufactured in the "Central flowery kingdom" long before any was produced in Europe; and some of it was so delicately and beautifully formed that the potteries of Europe have never yet been able to excel it in fineness. The silks which rustle in our parlors, or glisten on the sidewalks of our cities on sunny days, if not imported from the land of the "Brother of the Sun," still they remind us that these came originally from China. Gunpowder, which has had such a powerful effect as to revolutionize the art of war, and remove obstructing mountains in the path of progress, came originally from China. It is conceded, generally, that the mariner's compass was known to the Chinese many thousand years before Columbus discovered America. Its invention cannot with justice be conceded to the Neapolitans (A. D. 1302), as some believe, for it was in use much earlier among various nations. Paper-making and printing, two of the civilized arts, are thought to have been practiced by the Chinese eight hundred years before the discoveries of Gutenberg and Faust. Inoculation, ascribed to the genius of Jenner, was practiced as a protection against the horrors of small-pox, years previous to his time. Four centuries ago they were ahead of most nations of the earth, and although they have not advanced since, they certainly have not retrograded. Although we may not place them in the highest niche of our art galleries, yet we are forced to admit that the Chinese are worthy of much credit from more progressive nations for the rich legacies they have given to the world.

REVIEW OF TRADE.

Generally speaking, carriage-manufacturing has been extremely—we may say—unusually dull, all over the country. This, no doubt, is due very much to the stringency of the money market, which has likewise affected other business relations as well. The old complaint, an overstock of manufactured work, still is heard. This, at this season of the year, is very much to be regretted, since such a state of things is not very favorable for the interests of the working classes during the coming winter. Nor is there much prospect of benefit from the manufacture of velocipedes, which did so much for the trade the past season. There are two things against it: the one their decreasing popularity, the other the claims put forth by certain speculators in pretended patent rights, which no business man, true to himself, can possibly recognize. This of itself is sufficient, unless supported by ready sale, to kill off almost any kind of business. Dullness in trade has had the tendency to *force* builders into the manufacture of sleighs, the consequence of which will be—unless we have frequent falls of snow and a rather hard winter—to shut up the funds of our friends in a kind of stock they will find it difficult to *thaw out* in the spring, when it will be very much needed.

We have heard of several failures among builders already, thus early in the season, which we fear is but the forerunner of yet more before good times return. We have frequently felt ourselves called upon to caution our friends against the dangers engendered by the exercise of unlimited ambition. This, unless used with prudence, is quite as dangerous in its results, as is "masterly inactivity." In other words, it is more prudent in doing too little than in doing too much. This every experienced carriage-maker will doubtless fully understand.

We would incidentally add, before closing this article, that during the past year coaches have been almost totally ignored—Landaus, Clarences, etc., having taken their places among the aristocracy of our cities. The calls, too, in the heavier classes of work is for much heavier wheels than we have been accustomed to put on our carriages, the public—and builders too—having come to the conclusion that such run much easier and better than when made very light. In this respect we are beginning to copy after our trans-Atlantic cotemporaries, with profit.

FIRE IN A CARRIAGE-SHOP.

On the 29th of October, in the evening, the carriage manufactory of Jacob Dunn, located on the northwest corner of Eighty-seventh street and Third avenue, was totally

destroyed by fire. The fire broke out in an old shed situated in the rear of the shop, which was in the shape of an L, fronting on two streets, four stories high. The loss is estimated at $60,000, on which there is a partial insurance of about $35,000. The building, which was owned by George W. Archer, was fully insured. We understand that a shop will be rebuilt on the old site, and Mr. Dunn will go on with his business as soon as it is completed.

EDITORIAL CHIPS AND SHAVINGS.

Traveling in New York in 1759.—The following advertisement, copied from the *Weekly Mercury*, will prove interesting to every "Lover of his Country," in these progressive times:

The Philadelphia Stage Wagon, and New York Stage Boat perform their stages twice a week. John Butler, with his wagon, sets out on Monday from his house, at the sign of the death of the fox in Strawberry alley, and drives the same day to Trenton Ferry, when Francis Holman meets him, and proceeds on Tuesday to Brunswick, and the passengers and goods being shifted into the wagon of Isaac Fitzrandolph, he takes them to the New Blazing Star to Jacob Fitzrandolph's the same day, where Rubin Fitzrandolph, with a boat well suited, will receive them, and take them to New York that night. John Butler returning to Philadelphia on Tuesday with the passengers and goods delivered to him by Francis Holman, will again set out for Trenton Ferry on Thursday, and Francis Holman, &c., will carry his passengers and goods, with the same expedition as above, to New York.

Chariot of Peter the Great.—At St. Petersburg, in Russia, they have a gallery in which is preserved many memorials of Peter the Great. Among these is a gilt chariot in which he occasionally rode, and is one of the few gay curiosities in the collection. Besides this, there are turning-lathes and instruments for carving, worn smooth in the monarch's own hands while exercising as a mechanic, and the stuffed skin of the horse he rode at Poltava, the scene of his greatest victory.

Leveling Oil-Stones.—The writer has always experienced difficulty in attempting to shape an oil-stone or slip for shapening gouges. The ordinary way is to grind off the highest parts and then rub it on a gritty floor, or if near a foundry to get some parting sand and sprinkle on the floor or board on which you are rubbing; better still, if you can find the true surface of a casting before it is cleaned—this will cut it away quite fast. But recently, while trying to shape a small slip, it occurred to me to try some glass paper, and to my surprise I found that it cut away very fast. For trueing an ordinary oil-stone for sharpening planes, take a piece of glass paper, No. 2, and lay it on the bench and rub your stone on it; in this way you can true the stone in one quarter the time it would take in the ordinary way; and carpenters have always such means at hand. Five or ten minutes' rubbing will be found sufficient. Your glass paper will not be spoiled by the operation.

Wm. Penn's Old Carriage.—William Penn's old family carriage has come into the possession of the Michigan Central Railroad. The relic is over one hundred and sixty years old. A gentleman of Jackson, Michigan, either purchased or fell heir to it, but on its arrival he failed to pay express charges, and so the company took possession in default. It is one of the most interesting relics in the country. Would it not be well for some of our city or State authorities to endeavor to get possession of it?

New Uses for Velocipedes.—An enterprising individual at Berlin has submitted the following plan to the authorities: He proposes to board over all the gutters on each side of the streets, and this roadway, three or four feet wide, is to be the future velocipede high-road of the city. A thousand tricycles are to be placed on it, each with a practiced driver, dressed in a neat uniform, who will undertake to conduct one person, with letters, parcels, etc., along this road. As velocipedestrians always drive straight, room to turn is not required, and when the road is free it will serve as a footpath. A small charge for passengers, parcels, and letters will, it is estimated, give a fair return for the cost of construction. He argues that, besides the general convenience of his plan, it will be a great advantage to Berlin to bridge over the gutters, as they are at present very unsightly, and are liable to be frozen over in winter. Moreover, the establishment of foot-paths will facilitate the better regulation of the street traffic, and effect a great saving in the expense now incurred by cleaning the streets. The tricycles are to have a little canopy in winter, an umbrella being a sufficient protection in summer. The projector calculates that a speed may be obtained equal to that of an ordinary carriage at least, and guarantees all possible convenience and safety in the transit.

Henry Ward Beecher in the Blacksmith's Shop.—Mr. Beecher lately said: I never saw anybody do anything that I did not watch them and see how they did it, for there is no telling but that some time I might have to do it myself. I was going across a prairie once—my horse began to limp. Luckily I came across a blacksmith's shop, but the smith was not at home. I asked the woman of the house if she would allow me to start fire and make the shoe. She said I might if I knew how; so I started a fire and heated the shoe red-hot, and turned it to fit my horse's foot, and pared the hoof, and turned the points of the nails out cunningly, as I had seen the blacksmith do, so that in driving into the hoof they should not go into the quick, and shod the horse.

At the next place I came to I went straight to a smith, and told him to put the shoe on properly. He looked at the horse's foot, and paid me the greatest compliment I ever received in my life. He told me if I put on that shoe I had better follow blacksmithing all my life. Now, I never should have known how to do this if I had not looked on and seen others do it.

New Mode of Watering Horses.—A patent has recently been granted for a method of refreshing horses while in harness, which consists in making the bit hollow, and having perforations in it. A rubber tube extends from one side of the bit to the carriage, and by pressing a rubber bag which contains water, the driver is enabled to refresh horses whenever he chooses, without stopping. For saddle horses, the water bag is suspended from the horse's neck, or upon the pummel of the saddle.

JAPANESE HOSTLERS.—Japanese *bettoes*, or men who attend the horses of travelers, and run in advance to give warning of approach, perform some almost incredible exploits. They will travel forty miles in an afternoon, apparently without fatigue.

A CENTENARIAN.—A citizen of Richmond drives a wagon one hundred years old—the exact longevity of the memorable "one-horse shay," of which the poet discoursed. With a little tying up at the axles, and abstinence from sneezing on the part of the driver, it is said still to be a safe and serviceable vehicle.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, NOV. 20, 1869.

Apron hooks and rings, per gross, $1 *a* $1.50.
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 7½c.
Axles, plain taper, 1 in. and under, $5.50; 1⅛, $6.50; 1¼, $7.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $7.50; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half pat., 1 in. $10; 1⅛, $11; 1¼, $13; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅝ in., $11.00; ¾, $11; ⅞, $12.00; long drafts, $2.50 extra.

☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.

Bands, plated rim, 3 in., $1.75; 3 in., $2, larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Bolts, Philadelphia, list. 35 off.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 18 *a* 23c.
Burlap, per yard, 10 *a* 14c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, $1.75 *a* $2; velvet, $2.75 *a* $4; oil-cloth, 45 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $2, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $15 *a* $22.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.75 *a* $2.
Enameled cloth, muslin, 5-4, 35c.; 6-4, 60c.
Enameled Drills, 48 in., 50c.; 5-4, 45c.
Do. Ducks, 50 in., 70c.; 54, 60c.; 64, 80c.

☞ No quotations for other enameled goods.

Felloe plates, wrought, per lb., all sizes, 15 to 18c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.50 *a* $2.00.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.

☞ For a buggy-top two pieces are required, and sometimes three.

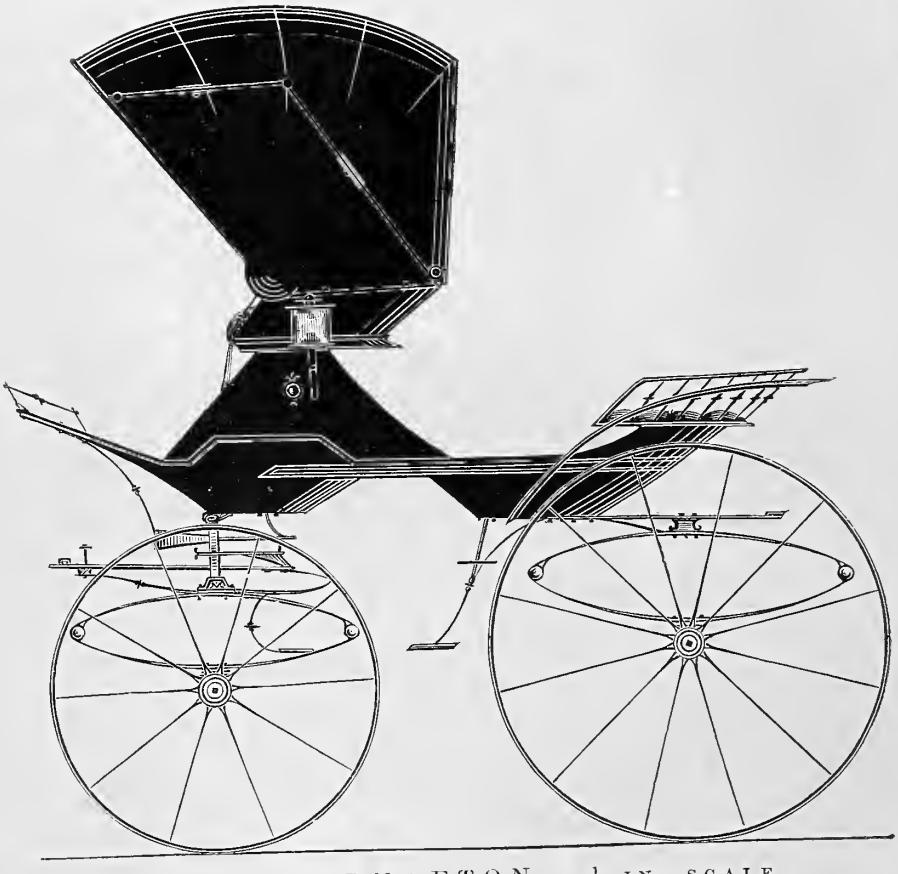
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $1.75.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach. $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 25c.; railing do. 23c.; soft dash, No. 1, 15c.; do., No. 2, 12c.; hard dash, 15c.; split do., 15c.; No. 1, top, 25c.; enameled top, No. 1, 25c., do., No. 2, 23c.; enameled trimming, 23c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates. (See Advertisement.)
Oils, boiled, per gal., $1.25.
Paints. White lead, extra, $13.00, pure, $14.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $6 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Sand paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's 40 off per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 15c.; bright, 16c.; English (tempered), 20c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.

☞ Two springs for a buggy weigh about 23 lbs. If both 4 plate, 34 to 40 lbs.

Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.

☞ For extra hickory the charges are 10c. *a* 12½c. each.

Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 15c.; 1-4 x 1, 15c.; 3-16 x 1 1-8, 16c.; 3-16 x 1, 16c.; 3-16 x 7-8, 17c.; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close-plated nuts and rivets, 75*a*80c.
Tufts, commou flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2 Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 53c
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.00; nonpareil, $5.25.
Do. English, $6.25 to $7.50 in gold, or equivalent in currency.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Whiffle trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.



DOG-CART PHAETON.—½ IN. SCALE.

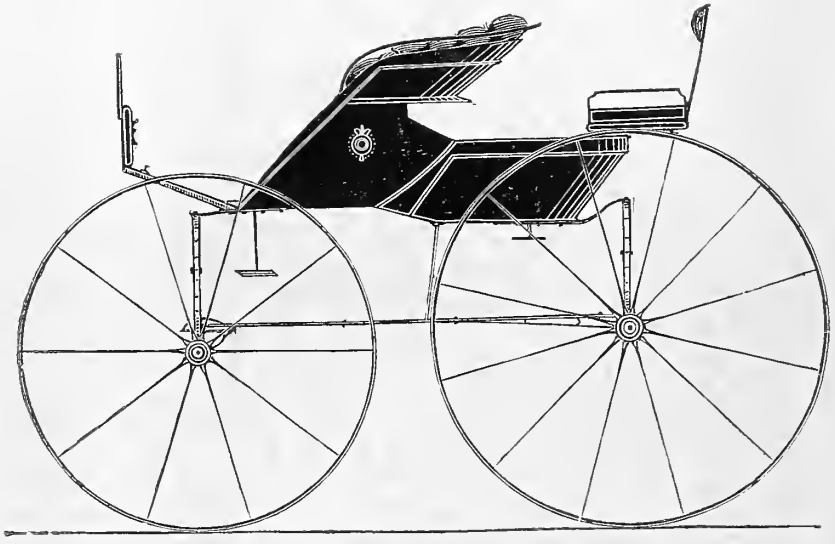
Designed expressly for the New York Coach-maker's Magazine.

Explained on page 119.

EXTENSION-TOP PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 120.



PHAETON, WITH BACK SEAT TO TURN IN. —½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 120.

SHIFTING-TOP COAL-BOX BUGGY. — ½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 120.

THE NEW YORK
Freemason's Monthly Magazine

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XI. NEW YORK, JANUARY, 1870. No. 8.

Mechanical Literature.

THE ADVENTURES OF THREE JOURS.

BY H. S. WILLIAMS.

Chapter VII.

The dinner at Miss Corneil's proved a very pleasant affair. The meats were cooked in a manner that would have suited the most fastidious; the deserts were flavored to perfection, and the wines were mellowed with age, while a widowed aunt of Miss Kate's presided over the feast in the most hospitable manner.

"A good dinner," exclaimed Loring, "is the summit of social enjoyment, more particularly when partaken of by a select few. From time immemorial the hospitality, the sociability, and the refinement of a people have been gauged by their dinner tables."

"And if I should ever be so fortunate as to have a home of my own," remarked Gloner, "one of my greatest enjoyments would be just such reunions as this; and I could realize no higher pleasure than to see my friends seated around my board, and partakers of my hospitality."

"Then you would make a good Southerner, despite your Northern birth," exclaimed Kate, "for there is nothing that we, as a people, pride ourselves more on, than our hospitality. In fact, I have known some to carry it to such an excess as to impoverish them."

"One can hardly discriminate between friends and foes, nowadays," returned the aunt; "and if one is too prodigal of his hospitality he is very apt to be imposed on."

"As for that," answered Gloner, "all my neighbors who were respectable, whether rich or poor, should ever be welcome to my table. Of course I would prefer those who could enjoy a feast of reason as well as a flow of soul, yet all should be received cordially, so they did not impose on good nature."

"If your home, however, should happen to be on a cotton plantation," said Kate, "you would be fretted and worried so that you would find but little time for social enjoyment. It does seem to me that everything goes wrong as soon as I turn and leave the field; or rather, nothing is done as I wish it to be; and it does fret me terribly sometimes."

"I fear," returned Gloner, with a smile, "that you allow yourself to be too easily fretted; I have always noticed that those get along best in life who take everything easily. I had a partner once, who, when we were penniless, with no prospect of bettering our condition, could sit down and whistle the most intricate airs without missing a note."

"Then he was more fortunately constituted than I am; yet I will venture to assert, that he never has and never will accomplish anything in life; one who has energy and ambition is ever easily fretted, while one who is deficient in these qualities always takes life as he finds it, without trying to make it what he wishes."

After a most pleasant evening, interspersed with music and conversation, Gloner accompanied Miss Lucy home in her buggy, while Loring remained to follow on horseback. On that occasion, at least, Gloner proved himself a most merciful master, for he was very sparing of the whip; in fact, the horses were allowed to take their own time, yet to their driver it appeared like a very brief journey.

"As we leave here to-morrow morning very early," he said, on entering the parlor, "it is not probable that I shall see you again, so I shall bid you good-by to-night."

"We shall, however, have the pleasure of seeing you again ere long, I hope," returned Lucy.

"That depends entirely upon yourself," he answered hastily; then in a lower tone he continued: "From the day I first met you in Mobile, I have admired you more, perhaps, than any lady I ever met; and if I come again, it will be only with the distinct understanding that I may try to win your consent to look upon me as something dearer than a friend. Pardon me for speaking thus plainly, but I would not for worlds take a step that might in the future bring sorrow to you and misery to me. It is left for you to answer me. Can I come again?"

His voice sank down to its lowest tone, but it was indescribably sweet and tender. For a moment she was silent, with her eyes bent on the floor; then raising them she answered, "I shall ever be pleased to see you, and you will ever be welcome here."

Taking her hand he raised it reverently to his lips, said "Good night; may God ever bless you as you deserve!" and left the room.

Out beneath the thick-leaved oaks he walked to and fro, for an hour or more, ere he was joined by Loring.

"Ah, Gloner, my boy, taking the benefit of the night breeze, are you?" exclaimed that worthy, as he rode up. "Well, just wait until I can rouse the stable-boy and I'll join you." He returned in a few moments and continued: "By-the-way, take a cigar. You will find that it will cool you off and calm your mind of any undue excitement to a great extent. I have already burned one, and here goes the second. The half hour I passed with Miss Corneil after you left—"

"Half hour! why it's a good hour, if not more," broke in Gloner, "and if you rode over at your usual speed, it's an hour and a half at least."

"Ah, well," answered Loring, as he threw the burning match on the ground and gave a puff or two; "'we take no note of time,' as your favorite Thomson, without the p. says, especially when in the society of such a charming girl as Miss Corneil."

"Of course you improved the hour and a half that you passed with her?"

"By St. Paul! improved it? well I done my best; no man can do more. If I did not make a favorable impression I mistook the girl, and am ignorant of my own powers: at all events she gave me a very pressing invitation to call again, and this is what I told her: 'My friend, Mr. Gloner,' I said, 'will probably come out to see Miss Linden; and although my company might be very acceptable on the road, yet I do not think that it would prove agreeable when she was present; therefore, if I come it will be expressly to see you;' and she answered me that I should be welcome."

"So we leave in the morning early, do we? Of course you bid Miss Lucy good-by for me, or were you so engrossed in self that you forgot all else? I confess I hate to go, but suppose we must. Did it ever occur to you, while visiting your friends, that after a certain time you felt as though you were in the way? A sure sign that your visit was, or at least ought to be, ended. Now, I feel as though I could stay here a month, and never get in the way. But the pleasure of coming again will only be the greater."

For an hour they paced to and fro beneath the dark shadows, Gloner saying but little, while Loring built innumerable air-castles, that assumed gigantic proportions to his imaginative mind, and then they retired to their room and took a short nap, only, ere daybreak, when they were awakened by the stable-boy, as he drew up before the house. At the door they met Mr. Linden, who bid them good-by, with a most cordial invitation to repeat their visit; then they whirled away toward town.

In the full vigor and prime of our manhood, when we put aside all the wild and vain dreamings of our youth, what a beautiful thing it is to meet a good and true woman, on whom we can rely for a helpmeet through life, without even so much as a thought of her inability to meet the full requirements of the most exacting. What sweet musings, what delicious thoughts, fill the mind; and how the breast swells with rapture at the charmed pictures of blissful hours to come. Filled with such thoughts, our two friends rode silently on, scarcely speaking until they reached the city. Leaving their horses at the stable, they proceeded to their boarding-house, just in time for breakfast.

"There's a stranger in your room, who came up from Selma in the boat, last night, and is waiting to see you," said their landlady, as they entered.

"And, golly, what a fright he am," said the little darky who waited on them. "He'd make a good scarecrow, shu'!"

On entering the room they saw some person seated at the open window, with his back toward them, who did, indeed, answer well to the darky's description. Turning partly round, they discovered, despite his untrimmed beard and long hair, the well-remembered features of Margrave.

"Now that the hurly-burly's done, we three have met again," he exclaimed, as he rose from his seat and met them. "Don't look so hard at me, for it's Margrave, and no one else; rather the worse for the wear, I admit—yet 'tis he; and, by the way, is it not time for the ringing of the bell—'The swinging and the ringing of the merry breakfast bells,' as Poe would have said, had he been as ravenous as I am, and inserted a verse, particularly devoted to boarding-house bells, in his poem."

"It is nearly time," answered Loring; "but before you can partake, you must go to the barber, and then we will rig you out in a better suit than the one you sport now."

"Well, this suit is rather threadbare, and no doubt but I look decidedly seedy; yet, remember that I had to take deck passage coming from Selma, and consequently the captain forgot to invite me to take a seat at his table. However, if it's not far, let's go, and let's be in a hurry, too."

In half an hour's time his general appearance was completely changed, and he partook of his breakfast with a most excellent appetite, after which they all proceeded to the shop.

"Of course you want a job," exclaimed Mr. Fountain, after the introduction.

"Well, slightly," returned Margrave. "As I have neither wardrobe nor banker's account, it would undoubtedly be the wisest thing I could possibly do to go to work."

A bargain was soon made, and he was to commence the next morning.

(To be continued.)

BROAD-WHEEL WAGONS.

LAST winter the turnpike companies of New Jersey had sufficient interest with the Legislature to have a law nearly passed to compel the use of wide tires to wheels in the northern parts of the State. Four-inch tires would then be the "legal wheel" there. It was not, we believe, proposed professedly in behalf of the turnpike stockholders, but, of course, for the benefit of *the farmers*. When the old lady called to the ducks, "dill, dill, come to be killed," it was just as much to the ducks' interest. The Jersey farmers were told that narrow wheels made ruts, and narrow-wheeled vehicles had to run in the ruts of previous vehicles, while broad tires could go over ruts and run easily anywhere. Farmers are not usually very intelligently represented anywhere, and it was not to be expected in the New Jersey Legislature. The reasoning was conclusive. The agricultural interest required the law. Narrow tires were to be abolished.

That broad tires are to the interest of turnpike companies there is no doubt whatever. The stones wear away much faster under a narrow than a broad tread. The true line for legislation should be to charge tolls in proportion to the width of tread. This would be justice to the road company, and not interfere with the rights of travelers.

Every intelligent horseman must know how absurd is the reasoning about the advantage of a broad tire. Its only benefit is when the cart is drawn over soft mud, when it acts as a mud shoe would to a man walking over a marsh. In ordinary traveling the broad wheel bears no comparison to a narrow one in point of ease and comfort to the horse. On a turnpike road every stone a little higher than the average has to be mounted by the broad tire, making it very hard work for the horse. A narrow tire pushes these stones aside, or slips round them. So with a rut; a narrow wheel, though running in the old channel of another wheel, has a hard, solid bottom, and the wagon is drawn easier than though on tolerably hard ground on the surface. Then, with regard to perfectly hard and smooth ground, in which the wheels will not sink a particle, and on which there are no stones, or any substances that would make an unlevel surface, the ease with which a narrow tire can be drawn in comparison with a broad one, is out of all comparison. If any one has any doubt of this, let him try a broad-tired wheel-barrow, and one of the same size and make with a narrow-wheeled one, and he will learn a lesson on wagon wheels he will not soon forget.

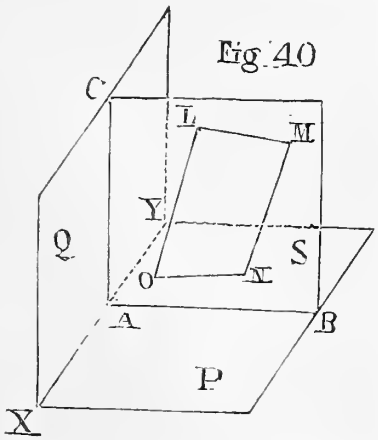
The proposed law came very near passing, and it will probably come up again this winter. It is to be hoped that the members of the Legislature will be made to see that this is all urged in the interest of a class—blindly urged, because their interests could be better protected in another way. And if there are any prospects that they should be inclined to pass it, "for the interests of the agricultural classes," let a half dozen broad and narrow gauge barrows be sent to Trenton for the lawmakers to experiment with.

[The foregoing, copied from *Forney's Weekly Press*, introduces a question devoid of novelty, the same having been agitated at various periods since the invention of wheel-carriages. Wide tires are only advantageous where the soil is either sandy or moist—narrow ones over good roads presenting less surface, and consequently less obstruction to draught. Legislators are so cheaply bought nowadays, we can easily guess the result.]

TREATISE ON THE WOOD-WORK OF CARRIAGES.

Continued from page 101.

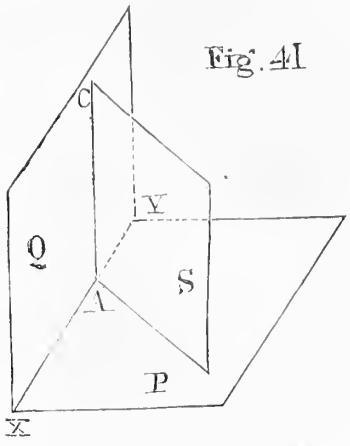
Fig. 40



Suppose L M N O (Fig. 40) to be a perpendicular surface to the two planes P and Q, the plane S of that surface will cut the two planes P and Q by the lines A B, A C, which are styled the traces of the plane S on the two planes of projection. The surface being supposed perpendicular to the planes P and Q, the traces A B, A C, of the plane S on those planes, are perpendicular to the line of intersection X Y.

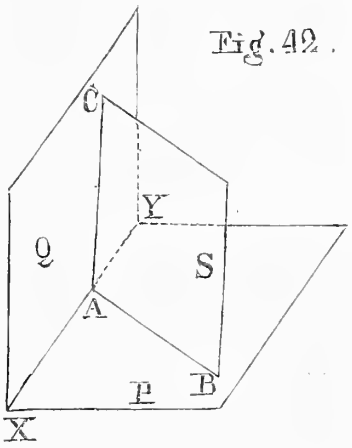
LVII. Every plane perpendicular to one of the two planes of projection has its traces on the other, perpendicular to their common line of intersection. Suppose S (Fig. 41) to be a plane perpendicular to one of the two planes of projection to the horizontal plane P for instance, the trace A C of the plane S on the vertical plane Q is perpendicular to X Y. Consequently, the plane P, being perpendicular to the two planes Q and S, is perpendicular to their common line of intersection AC (Art. 37).

Fig. 41



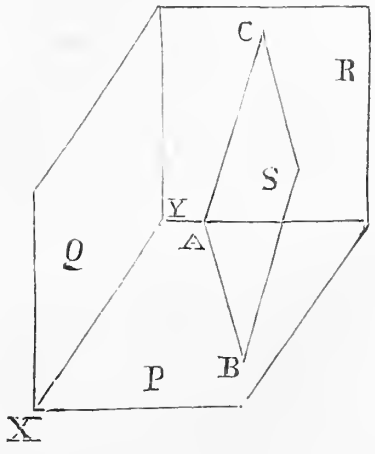
LVIII. Any plane S being oblique to two planes of projection P and Q (Fig. 42), has its traces A B, A C, on each plane, oblique to their common line of intersection X Y. So that if one of its traces were perpendicular to the common line of intersection of the planes of intersection, for instance to that of the vertical plane, the plane S would then be perpendicular to the horizontal plane (Art. 37), which is contrary to the hypothesis.

Fig. 42.



Two planes of projection are sufficient to reproduce a plane in space. Nevertheless, if the position of the first two planes of intersection, which is generally determined by the form of the object to be reproduced, were such that a plane in space could not be expressed by its two traces, which would be the case if the trace A B of the plane S, and of the horizontal plane P (Fig. 43), were parallel to X Y, or so oblique that it could not meet that line in the square of the plan. In this case use is made of an auxiliary plane R, on which to bear the vertical trace A C.

Fig. 43.



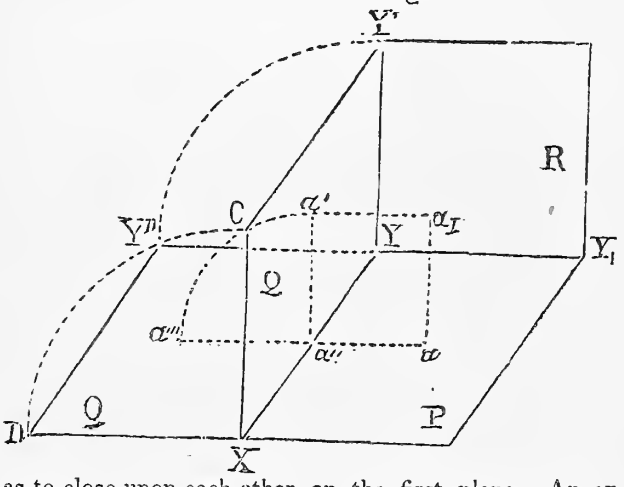
The projection of a solid consists in projecting the surfaces surrounding it.

First the solid angles are projected, then the lines of intersection of the surfaces; the projections thus obtained are the required projections.

LIX. In order distinctly to understand the operations brought about by the planes of projection, they must always be supposed to be perpendicular to each other, as we have done here. But it must be understood that if the drawings had to be executed according to a system of planes so disposed, the operation would be very lengthy. Therefore, in order to abridge the work of the projections, it has been resolved to unite all the planes of projection on the same plane surface; they are only separated in twos, by a line that is taken as their common line of intersection.

In order to bring the planes of projection that we have suggested, of the Fig. 27, to bear on Fig. 43, it must be supposed that one of them remaining fixed, the two others, accompanied by their projections, have revolved around their line of intersection, like a hinge, so

Fig. 45.



as to close upon each other on the first plane. An example will suffice to impart a clear conception of this rotative movement.

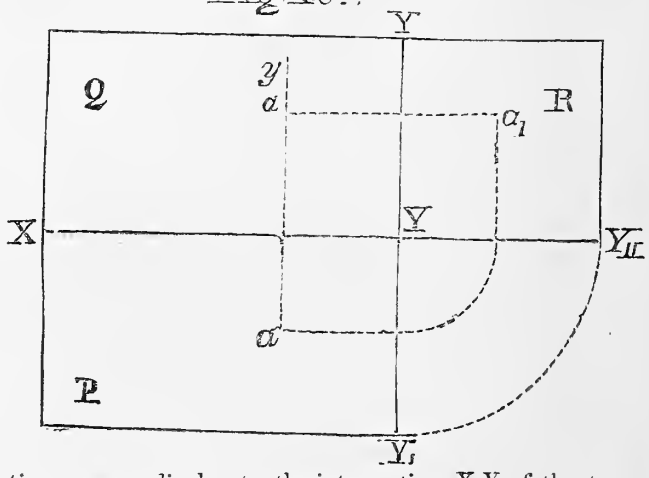
Let P, Q, and R be the three planes of projection (Fig. 45). Let us admit that the horizontal plane remains fixed. Then turn the vertical plane Q around the line of intersection X Y as a hinge, by a quarter of a circle C D, until it falls in Q′ on the horizontal plane. Suppose that the auxiliary plane R, carried on by the plane Q, is projected on to Y Y″. Then it suffices to turn the plane R around that line, in the same manner as the plane Q.

When folded down the three planes present the same disposal as shown in Fig. 46, where the intersection X Y is brought parallel to the sight of the reader. The horizontal plane is below that line, the vertical plane is above, and the auxiliary plane to the right. In order to reconstruct the planes of that figure, in the same manner as they must be when the projections are under discussion, it must be supposed that the two planes Q and R stand vertically on the horizontal plane, by turning the quarter of a circle around the intersection X Y, in the manner of a hinge, and that then the plane R turns around its own intersection Y′ Y together with the vertical plane, which is projected from Y, in such a manner that the ground line Y $Y_{,,}$, falls on the horizontal plane in Y $Y_{,}$.

The two projections a, a' (Fig. 45) from a point in space, after the closing. will be found on a line $a\,a''\,a'''$ perpendicular to X Y. The perpendiculars lowered from the projections a and a' from a point in space on to X Y, will meet that line in a single point a'' (Art. 47). Therefore when the vertical plane turns round X Y, the line $a'\,a''$, pending that movement, does not cease to be perpendicular to that line, and when the vertical plane is folded over upon the horizontal plane, the line $a'''\,a''$ forms a single line with the line $a''\,a$, because both are in the same plane, and perpendicular to X Y in one and the same point.

By uniting all the planes of projection on the same surface, it will be seen how that process facilitates the execution of the drawings. As soon as the projection a is obtained from a point in space on any plane P (Fig. 46), it is certain that the projection a' in the other plane Q is on an indefinite line $a\,y$, drawn through the projec-

Fig. 46.



tion a perpendicular to the intersection X Y of the two planes of projection.

Till thus far we have only defined the geometrical figures that we shall employ, and given an outline of the system of the projections in an abstract manner. For this purpose we have made use of figures represented in perspective, on which we have only indicated the principal propositions, because the operations which are intended to give the exact size of the lines, the surfaces, and the angles that they respectively form, cannot be realized on those figures.

We shall now practice the reader in the method of the projections, by indicating the manner by which to proceed in order to represent the body of a phaeton on three planes of projection in the same manner as we shall dispose them for all the bodies. However, before, we will illustrate the manner of representing the rules of punctuation and the annotations that we propose to follow.

LX. MANNER OF REPRESENTING POINTS, LINES, AND SURFACES.—We will indicate the points, lines, and surfaces taken in space, by the capitals A B C D, etc., as also the points, lines, and surfaces that will be taken on the planes of projection; the same corresponding points in the horizontal projections by the italics $a\ b\ c\ d$; the vertical projections by accented italics $a'\ b'\ c'\ d'$, and the plans on an auxiliary plane by indiced italics $a_{,}\ b_{,}\ c_{,}\ d_{,}$. In the change of planes, the revolution or folding over of

figures, the same points will be the same letters furnished with several accents or indexes.

A point, a line, and a surface in space, we will express by placing their projections in parentheses; so that ($a\ a'$) will express the projections of a point A on the horizontal and on the vertical plane; ($a\ b$, $a'\ b'$) the projections of a line A B; and lastly, ($abcd$, $a'\ b'\ c'\ d'$) the projections of a surface A B C D.

The projections on three planes of projection will be indicated in a like manner, by adding the projections of the third to those of the first two. Therefore ($a\ a'\ a_{,}$) indicates the projections from a point A in space on two planes of projection.

A point, a line, or a surface, can be equally defined by their projections on the two vertical planes; therefore ($a'\ a$) will express the projections of a point A; ($a'a$, $b'b$) the projections of a line A B; ($a'\ b'\ c'\ d'$) the projections of a surface A B C D.

All the projections that we have considered have been represented in this manner; they only require the parentheses. As the planes of projection being in perspective, the points, lines, and surfaces in space have been figured and indicated by capitals. But in the geometrical system, all that is considered in space being expressed by projections indicated by italics on the planes of projection, the capitals disappear, and they are only preserved on the planes of projection:

1st. To designate points, lines, and surfaces taken on those planes; in that case, the point in the plane where it is, and its own projection, become confounded.

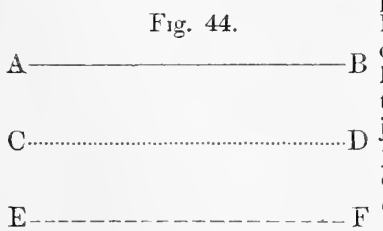
2d. When, in consequence of a rotary movement, the points, the lines, and the surfaces in space are folded over upon one of the planes of projection; then the points are designated by capitals without accent in the horizontal plane, by accented capitals in the vertical plane, and by indexed capitals in the auxiliary plane.

The traces of a plane in space on the planes of projection are designated by the same capital, without accent in the horizontal plane, accented in the vertical plane, and indexed in the auxiliary plane. Therefore (S S′) indicates a plane in space having its traces on the horizontal plane and on the first vertical plane, and (S $S_{,}$) a plane in space having its traces on the horizontal plane and on the auxiliary plane.

The intersection of the vertical plane and the horizontal plane is indicated by X Y (Fig. 46); that of the horizontal plane and the auxiliary plane by Y Y. When the auxiliary plane is folded over the intersection Y $Y_{,}$ comes in Y $Y_{,,}$ on the prolongation of X Y, the line Y Y′ is the intersection of the two vertical planes.

LXI. Rule for Punctuation.—Visible lines are represented by a full line A B (Fig. 44); hidden lines by a punctuated or dotted line C D; the lines of operation by a broken line E F, especially those uniting the projections of the same point. The figures that comprise the same given parts and which indicate the result of the operation after the folding down, are represented in the same manner by the same lines, but deeper. Lastly, the lines of important operations, such as the traces of a plane, are formed by alternate small lines and round points G H.

Fig. 44.



LXII. In order to draw any object, the dimensions and form must be first fixed; these are indispensable requirements. But the dimensions and forms of bodies vary: the first on account of special requirements and the different kind of body; the second on account of taste, fashion, or fancy. We will examine these given details in the second part, as we do not wish to treat in this part any but the general principles applicable to all bodies. But in order to fix the idea on the relative conventions of the representation of bodies, we will take the body of a phaeton, because it comprises the two kinds of surfaces—plane and curved—that we shall have to consider in the other bodies.

(*To be continued.*)

Home Circle.

CLEANTHE'S HYMN TO JUPITER.*

Hail, mightiest of immortals! many a name
Bespeaks whose greatness, evermore the same!
Ruler of nature, whose dread sovereignty
Upholdeth all things by a fixed decree,
Thee I invoke, great king! for, frail and weak,
Fitting is it for man thy praise to speak!
For they who breathe the air and tread the ground
Are all his offspring, and, compared with thee,
Are all his fleeting image of a sound;
Therefore my office and my joy shall be
To sing thy matchless power eternally!
This countless train of worlds their course fulfill,
Encircling earth, obedient to thy will!
Thy steadfast hand the thunderbolt doth fling,
That two-edged, fiery, ever-living thing,
With which, when rent, all nature breathless stands,
Fearing the power of thy resistless hands!
The mighty plan of nature thou dost guide,
Pervading all things, to all life allied!

Without thee, God, thy presence and thy care,
Nor in the earth, nor in the empyreal air,
Nor in the heaven divine, nor tossing sea,
Can aught be done, save through the impiety
Of senseless man. Thy penetrating view
Can pierce the mazes of confusion through,
And render all things unperplexed and bright,
All discord harmony, all darkness light;
So that, or good or evil, all shall tend
To the fulfillment of one common end.
But this eternal purpose men deride,
And scorn this heavenly wisdom in their pride.
O wretched men! still longing to possess,
Forever thirsting after happiness,
They neither seek to learn, nor care to know
This law divine, whose guidance can bestow
A life of honor, by the good beloved,
By reason guided, and by heaven approved;
But now, alas! rush headlong onward still,
Each at the guidance of his own vain will.
Of some ambition is the end and aim,
A thirst insatiate for the draught of fame;
Some blindly gain and hoard and worship gold,
While others yield to passions uncontrolled.
But thou, the all-bestowing God of love,
The thunder-ruling, cloud-compelling Jove!
Save from this mournful ignorance this vain,
Distempered mind, and give us to attain

* Quoted by St. Paul, in his address to the Athenians, Acts xvii. 28.

That wisdom which directs thy guiding hand,
In the wide circuit of thy just command;
So that, thus honored, we may honor thee,
In rendering worthier praise eternally;
Since not to man on earth, nor gods in heaven
Can any higher, nobler task be given,
Than in one endless song to celebrate
This Law eternal, universal, great!

WINTER RAMBLINGS IN KENTUCKY.

BY PORTE PENCIL.

(*Concluded from page* 104.)

RETURNING to Squire W.'s, we made arrangements for our departure, thanking the family for the many courtesies extended to us during our stay, and mounting our faithful animal, were soon well on our way to Guthrie, on the line separating Tennessee from Kentucky; after reaching which, we pass on through Hampton, Trenton, Hopkinsville, and Madisonville, where we take the cars for Henderson. Before we close our rambles we propose to speak more fully of the resources of the section of country we have passed over. The agricultural advantages of the Green River country can be summed up in a few words. For tobacco, wheat, and other grains, there is no portion of our great country superior to it, and only a very small part equal to it. A semicircle described with a line 100 miles long, extending from Henderson to the Tennessee State line, will include an area of territory producing more tobacco than the same area on any part of the earth. For wheat, corn, oats, and hay, there are no lands superior to that embraced in this semicircle. The county of Christian, of which Hopkinsville is the county seat, is one of the largest and wealthiest counties in Southern Kentucky; and the soil of a large part of it, in beauty and fertility, is equal to any portion of the habitable globe. It is believed by many that the coal of Hopkins and Christian counties is superior to any coal in the State, and any west of the Monongahela. It lays on either side of the railroad in inexhaustible quantities, crops out above the level of the road bed, and is moved by drifts or lateral shafts, and can be dumped into the cars standing on the railroad track. We learn that there are more than *fifteen* mines opened. The thickness of the strata ranges from four to seven feet, and in what is termed a *geological fault* the vein is twelve feet thick. The coal in these mines is the best *bituminous*, and can be and is used by carriage blacksmiths, cokes well, and makes *gas* of the best quality. The coal is free from sulphur, does not disintegrate on exposure to the atmosphere, and slacks less than Pittsburg coal. The greatest and best coal is the block coal. This block coal is used in smelting ores without coking. The coal and ores are emptied together in the furnace or cupola, the fire is applied, and the metal melted and run into pig iron. All other coal has to be *coked* at much cost and labor, with loss of time and money. Block coal is found in Hopkins county, within thirty-four miles of the Ohio River, at Henderson; also in Christian county, fifty-five and sixty miles from Henderson, sixteen miles from Hopkinsville, and from sixty to eighty-five miles from Nashville, on the E. H. and N. R. R. There are also several varieties of iron ores on the line of this road. The vein is reported eighteen to twenty inches thick. Another form of iron ore is found immediately overlaying a seven-foot vein of coal. When this line of railroad is opened up (it now being in the hands of the Pennsylvania Central), Nashville, with a population of from 50,000 to 60,000, will possess peculiar advantages for manufacturing. Nashville is in the center of almost every article of raw material ever manufactured in the United States, such as cotton, hemp, wool, iron, copper, zinc, lead, &c., marble, stone, cedar, walnut, poplar, ash, hickory, and all kinds of hard and soft wood; in fact, every known article used for manufacturing is within or will be in easy reach of Nashville. But perhaps the reader will say I have exceeded my limits in rambling over into the State of Tennessee. I have done so in order to show, in these railroad times, that the State of Kentucky will be a benefit to her sister State through the instrumentality of the iron-cased horse. As we have started homeward, we will end our journey and ramblings in Henderson, which is hardly second to Nashville in advantages as an iron-manufacturing town. The proximity of the block coal and its accessibility by rail, the cheapness with which it can be supplied, and the facility with which raw ores can be brought from the Cumberland and Tennessee Rivers, and the Iron Mountains, give our city great advantages. But we fear the tobacco interests will absorb all others, unless there is a change for the better.

Few of the Southern towns or cities in the United States preserve intact the social relations of the past to a greater degree than this venerable Burg. Many of the old families of the State selected this delightful site on the Ohio River as a point of residence, and owning the land for miles around, in the center of the finest tobacco region on the globe, became immensely rich by raising this great staple of tropical agriculture for the markets of the world. Very little, however, of the wealth of the planters and manufacturers seems to have been distributed in the improvement of the town. The property, at the start, was held at such a rate that it kept our small traders, storekeepers, and manufactories in advance of the number that were likely to supply the convenience of planters and negroes. Now and again, however, an enterprising individual would get in, and for a time a very considerable business was done with the smaller places along the river bank. Even the merchants of Evansville, now one of the great emporiums of trade in the West, came here to lay in their stock of goods. But now things have changed. The population of Henderson remains at 8,000, while the other contains 30,000, and is daily increasing. But Henderson, as if surrounded by an impenetrable *estacade*, the leading feature of which was the doctrine now insisted on by the supporters of the English aristocracy—"that the soil of the country should not be separated from the capital of the country,"—attained an early and stunted growth, and became insignificant, except in the matter of tobacco and chivalry—the latter article still surviving, notwithstanding the remarkable prediction following the French Revolution, that it was "extinguished forever." Far better for the city were it so.

As I remarked before, Henderson contains sixteen tobacco factories, the first being erected in 1832 by F. B. Burbank, who, in the old concern, still seems to "live and move and have his being" in tobacco, which has, indeed, made him one of the millionaires of the place. Messrs. Barrett, Adams, Soaper, Burbank & Bros., E. B. Newcomb, Gilmore, and others whose names I have forgotten,

are largely engaged in the business; some of them owners of large plantations, and grow as well as manufacture the article. Some of the plantations are worked by negroes entirely, others by white labor, and in some both are employed; the net result being in favor of white laborers, according to the experience of many plantations, to an appreciable extent. The tobacco grown in this county is of a very fine quality, and is manufactured mostly for the British market. It was formerly shipped at New Orleans; but since the war there are no heavy shipments there, and it is now forwarded, *via* Evansville, by rail to New York.

The heavy work in the factories commences in November, when from fifty to seventy hands are taken from the plantations and employed in each of the factories here, in receiving and stemming and putting the product through the various processes, until finally it is packed in hogsheads.

The salt wells, about twenty minutes' walk from the town, are worth the attention of visitors. The discovery of the salt water grew out of a contract by which the Henderson Coal Co. agreed to give Mr. Burbank mining privileges over some 11,000 acres of land, upon his contracting to bore to the depth of 1,400 feet for coal. The boring was prosecuted to a depth of 1,600 feet from the surface, and some twelve indications of coal, with four workable stratas, were discovered. At the depth of 740 feet an artesian well was sunk, to discover the salt water which, from the analysis that had been made, was supposed to exist, and also for the purpose of prospecting the coal field. The result was the discovery of a great abundance of salt water, which, from a four-inch hole, throws out 400 gallons a minute. The water at present requires ninety gallons to produce a bushel of salt; but, encouraged by a report of Professor Owens, it is proposed to carry the boring 1,000 feet farther into the bowels of mother earth, when the briny springs may probably be discovered to be the abode of an order *cetacea*, whose horizontal tails may be connected with appropriate machinery to fetch them to the surface, and thus bring spermaceti to our doors without the expense and risks of a whaling voyage. Just think, too, in connection with this matter of digging for fossil salt, what an attraction whale lunch would be at "Vogel's Bazaar," or Pargny's, or "Delmonico," for there is not only a St. Charles and a St. Nicholas at Henderson, but a "Delmonico." Small bathing-houses are erected over the springs, and are much resorted to by invalids and those desiring the invigorating effects of a salt-water plunge.

About one-third the line of the Henderson and Nashville road has yet to be built. The work was commenced at both ends of the line, and that portion of it lying between Nashville and Hopkinsville and Henderson and Madisonville is built. One of the great purposes contemplated in the construction of this road is stated to be the supply of coal through the country. The coal fields in this region are represented to be the most extensive in the world, and the quality of the article equal, if not superior, to Pittsburg coal.

The Mastodon Coal Co. own mining privileges in 23,000 acres, together with the fee in a portion of the property; and several of the members of the Henderson Coal Co. own a portion individually. At the present time there is but little enterprise in this place, except in tobacco and gold bonds; but the development of the rich mineral resources of the country will probably result one day in establishing a great manufacturing business at Henderson, though the probabilities are against it. The main travel to and from the East to this point is by the Ohio and Mississippi Railway to Vincennes, thence to Evansville by cars, where a daily line of packets run to Henderson.

Having enlisted your attention, kind reader, for some time, I would fain enlarge upon the advantages of traveling upon horseback, and the benefits of abstaining from intoxicating liquors along the road. I would also expatiate upon the glorious prospects of the Western States, unfold their beauties, their antiquities, their wealth, their capacities, and their vastness; and picture to you the thronging millions that shall inhabit there ere many years shall pass away. But we ended our ramblings through Kentucky at Henderson. And now, kind reader, if these jottings have served to while away a spare hour, our object is accomplished; all which may be happily reviewed in after days, in connection with fond memories of those we have met in our rambles.

Pen Illustrations of the Drafts.

DOG-CART PHAETON.

Illustrated on Plate XXIX.

It gives us much pleasure in being able to present our friends with an original design for a Dog-cart Phaeton, as fine as the one printed on this plate. The sides, with some economy, may be made solid, and painted or molded, as shown in the drawing. A block will be required in forming the back corners, and a panel for the back of the body. It will be observed that in setting the seats, lightness has been studiously considered. Width of front seat, 45 inches; axles, 1¼ inches; wheels, 3 feet 4 inches and 4 feet 2 inches high; hubs, 4¼ by 7 inches; spokes, 1⅝ inches; rims, 1¼ deep; tires, ⅜ by 1⅛.

Painting.—Patent black ground-work, for both body and under-carriage, this last broad, striped blue, with two narrow ones in white near the edges.

Trimming.—Drab cloth.

Workman's charge for building $50 @ $55; manufacturer's price for the phaeton, handsomely finished, $900.

New York Charges for Repairing.—*Wood-work:* New hub in wheel, $5; new spoke, $1; new rimming wheels, $20; half-rim, $2.50; per set, drafting wheels, $1; carved spring bed, $10; bolster, $8; carved back spring bar, $8; pole, $9; yoke, $7.50; fifth-wheel bed, $2.50. *Iron-work:* New tires and bolts, $35; tire bolts, 25 cents each; re-setting tires, $8; new wheels, boxed, tired and painted, $85; carriage-bolts each, 30 cents; re-setting the axles, $10 @ $12; oiling axles, and new washers, $2. *Trimming:* New cloth head-lining, $55; new covering top with leather, $60. *Painting:* Burning off old paint and repainting body and carriage-part, $150 @ $200 col-

oring and varnishing body, painting and striping rims, and varnishing carriage-part, $90. *Plating:* Capping four axle-nuts, $6; capping set of top nuts (silver), $3.50; new set of silver-plated bands, $7.

EXTENSION-TOP PHAETON.

Illustrated on Plate XXX.

OUR readers will observe that this phaeton is constructed with a view to lightness, both in the cut-under and the back-quarter. Indeed it may be thought that our artist has gone to extremes in his effort to adapt the French fashions to this particular design. This, however, is a matter which the builder must settle for himself. The body —a paneled one—is hung upon three elliptic springs, and is of such simple construction that we need not occupy space in describing it, but proceed with other details more needful. Width of body (in the clear), 46 inches; axles, $1\frac{1}{8}$ inches; wheels, 3 feet 4 inches and 3 feet 10 inches high; hubs, 4 by $6\frac{1}{2}$ inches; spokes, $1\frac{1}{16}$ inches; rims, $1\frac{1}{8}$ inches; tires 1 by $\frac{1}{4}$ inch.

Painting.—Brown body and carriage part, this last set off with $\frac{3}{8}$ inch black stripe, edged with two fine lines, red.

Trimming.—Blue broadcloth.

Workman's charge for building the body, $45; manufacturer's price for nicely-finished phaeton, $850 @ $900.

NEW YORK CHARGES FOR REPAIRING.— *Wood-work:* New hub, $8; spoke, $1; rimming wheels, $20; drafting, $1; back spring-bar, carved, with center figure, $15; front spring-bar, $2; perch, $4.50; axle-beds each, $3.50; pole, $9; yoke, $8; head-block, $3. *Iron-work:* New iron tires and bolts, complete, $20; tire-bolts each, 25 cents; carriage-bolts, 30 cents each; re-setting axle-arm, $4; oiling axles, with new washers, $2. *Trimming:* New broadcloth head-lining, and covering top with enameled leather, $165; each separately, tops, $85; head $80. *Painting:* Burning off old paint and re-painting body and carriage-part, $90; re-touching-up body and carriage-part, and varnishing all, $40. *Plating:* New bands, $4; capping axle-nuts, $6; capping prop-nuts, $3.50.

DOG CART PHAETON, WITH BACK SEAT TO TURN IN.

Illustrated on Plate XXXI.

ON this plate we give our patrons a very stylish kind of phaeton, with the back seat to turn in, when not in use. The mode of building is similar to that of the one on Plate XXX., and therefore need not be repeated here. The tilbury pillar in front should be cut away where it laps on the seat, to accommodate it to the projection—one inch—of the same beyond the sides of the body. The lines drawn horizontally on the seat, in finishing the tip of the pillar, indicate molding. The white lines on the back-quarter of the side panel likewise represent moldings. Width of this body on the front seat, 36 inches inside; wheels, 3 feet 10 inches and 4 feet 1 inch; hubs, $3\frac{3}{4}$ by $6\frac{1}{2}$ inches; spokes, 1 inch; rims, $1\frac{1}{8}$ inches; steel tires, 1 by $\frac{1}{4}$ inch.

Painting.—Body, carmine; under-carriage, cream, striped with carmine, broad stripe and two narrow ones in white.

Trimmings.—Drab corduroy.

Workman's charge for building the body, $32; seller's price for phaeton, well finished, $475.

NEW YORK CHARGES FOR REPAIRING.— *Wood-work:* Hub, $5; spoke, $1; rimming wheels, $18; drafting, $1; axle-beds each, $4; head-block, $3; perch, $5; spring bar, $2; shaft bar, $2; new shaft, $4; pole and yoke (see under plate XXIX.). *Iron-work:* New tires and bolts, $18; re-setting tires, $8; tire-bolts each, 25 cents; carriage-bolts each, 50 cents; new spring, $16; fifth-wheel, $5; re-setting axles, $6. *Trimming:* Leathering shafts, $7; new lining, cushions, &c., $150; re-covering dash, $12; new apron (rubber cloth), $10; whip-socket with fastenings, $3. *Painting:* Re-painting, striping, and varnishing, $90; touching-up and varnishing, $45. *Plating:* Capping axle-nuts, $6.

SHIFTING-TOP COAL-BOX BUGGY.

Illustrated on Plate XXXII.

THIS very pretty design differs in some respects from the one published last month, but the points will appear so evident, on comparison, that we need not particularize further than to suggest the painting of the scroll-work as indicated in the drawing. Wheels, 3 feet 10 inches and 4 feet 1 inch high; hubs, $3\frac{1}{2}$ by $6\frac{1}{2}$ inches; spokes, 1 inch; rims, $1\frac{1}{8}$ inches; steel tires, $1\frac{3}{16}$ by 1 inch.

Painting.—Black, under-carriage, three fine lines, center line blue, two outside lines white.

Trimming.—As for buggy described on page 105.

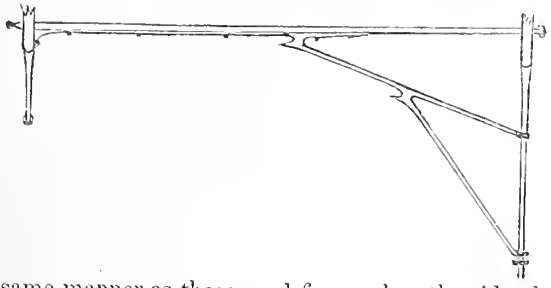
Workman's charge for making body, $18; carriage-part, $8; wheels, $10; shafts, $3.50; spring bars, $3; price of the buggy, nicely finished, $465.

NEW YORK CHARGES FOR REPAIRING.— *Wood-work:* Set new wheels, $80; hub, $5; spoke, 75 cents; new rims, $16; shaft-tops, $2; new shaft, $4; spring bar, $2; axle-bed, $4; perch, $5; head-block, $3; drafting wheels, $1. *Iron-work:* Re-setting tires, $8; new tires and bolts, $20; tire-bolts, 25 cents; carriage-bolts, 50 cents; fifth-wheel, $5; re-setting axles, $6. *Trimming:* Covering dash, $12; body linings, $40; new top and head-lining, $125; whip-socket, including fastenings, $3; cleaning top and oiling, $2.25; leathering shafts, $7. *Painting:* Re-painting, $75; touching-up and varnishing, $35.

Sparks from the Anvil.

PERCH-STAY.

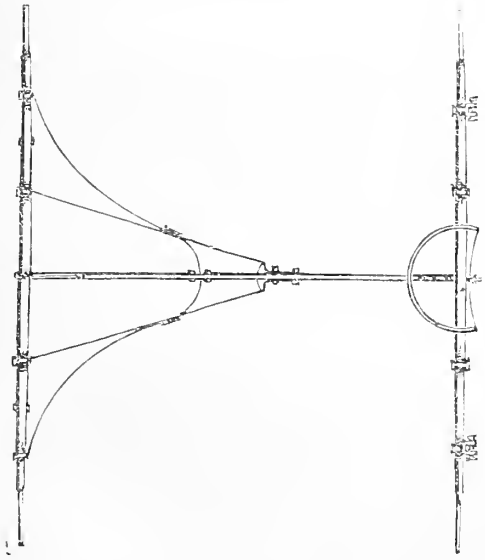
Mr. Editor,—With this article I furnish you with a sketch of our pattern for the perch-stays of a cut-under body, or such as requires the wheel to run well under the body. You will notice that the stay-heads are formed in



the same manner as those used for coaches, the side-plates running back of the point where the stay strikes the perch in order to strengthen it. For a light buggy these stays are made of $\frac{3}{8}$ or $\frac{7}{16}$ round iron. These look much lighter and are stronger than oval. J. B. P.

STAYS FOR A SINGLE-PERCH.

This original design for a perch and stay has been furnished us by a correspondent:



The drawing so well explains itself that we are spared details, further than to notice that single perches for buggies and other extremely light vehicles, are again much used. We shall have another next month.

STEEL.

A piece of good steel is an almost priceless treasure, because tools are an indispensable requirement. Yet make steel as carefully as possible, you cannot always rely upon its uniform quality throughout the same piece. Outer indications are often unreliable, and even breakage

revelations refer but to the point of fracture. In forging steel the secret is the temperature. Too high or too low will ruin all; and this temperature must vary with the kind of steel required. Therefore, cheapness should never be sought as the chief good. Blistered and shear steel want more heat than cast-steel; the greater the amount of carbon, the lower must be the heat at working, and yet the harder is the labor. Good forging is as important as good material. After cooling, the hammering should be very light, or internal fracture will be set up, not homogeneity. Let the blows fall in one direction; certainly not at right angles to each other, so as to destroy the grain. Burned steel may be brought round by heating hot and quenching in water repeatedly. In tempering, great care is needed. Forging tempers, and a less heat will then suffice. This hammering is better as a commencement, than hardening direct from the annealing oven.—*Scientific American.*

VARNISH FOR IRON.

The following is a method given by M. Weiszkopf, of producing upon iron a durable black shining varnish: "Take oil of turpentine, add to it, drop by drop and while stirring, strong sulphuric acid until a sirupy precipitate is quite formed, and no more of it is produced on further addition of a drop of acid. The liquid is now repeatedly washed with water, every time refreshed after a good stirring, until the water does not exhibit any more acid reaction, on being tested with blue litmus paper. The precipitate is next brought upon a cloth filter, and after all the water has run off, the sirupy mass is fit for use. This thickish magma is painted over the iron with a brush; if it happens to be too stiff, it is previously diluted with some oil of turpentine. Immediately after the iron has been so painted, the paint is burnt in by a gentle heat, and, after cooling, the black surface is rubbed over with a piece of woolen stuff dipped in, and moistened with linseed oil. According to the author, this varnish is not a simple covering of the surface, but is chemically combined with the metal, and does not, therefore, wear off or peel off, as other paints and varnishes do, from iron."

Paint Room.

CARRIAGE PAINTING IN BOSTON.

Boston, December, 1869.

Mr. Editor,—Your request has been received, and in reply I take pleasure in giving the following details in regard to carriage painting as done in this city. It is, of course, very similar to the method generally followed in New York, although there are many slight variations, as there are differences with different builders in the same city, caused by the variety in the class of work produced.

For this reason I cannot give *the method* of Boston, but can only give the process which is employed by a few of the leading painters who work only upon first-class work. Moreover, in order to write connectedly and understandingly, I must confine myself to one kind of vehicle, and for this purpose I will take a buggy and describe first the painting of the body, then of the carriage parts.

When the body is received from the wood-shop, we first give it, inside as well as out, a thin coat of "Perma-

nent wood-filling," which, unlike the prophet who "*Hath no honor in his own country*," is nowhere so fully appreciated and so generally used as in its foster home where it is best known. This priming fills all the pores and prevents shrinking. We then give a coat of elastic rough-stuff, then putty-coat, and follow with three or four additional coats of ordinary rough-stuff. We consider this rough-stuffing a very important part of successful painting, and one that should have the personal attention of the head painter. The mixing is more important than is generally thought, for if too hard it will be inelastic and liable to crack, and if too much oil is used it is liable to absorb the brilliance of the other coats, or dry improperly and cause them to crack. The first coat should be a little more elastic than the others in order to agree with the elastic priming coat, and the number of rough-stuff coats must be determined by the smoothness of the panels.

After rubbing the rough-stuff to a fine surface with pumice-stone, then comes the coloring. If black, two coats of color will be sufficient; with other colors three or four coats may be necessary, the object being to give fullness and depth. Nothing looks meaner than thin color. When painting a buggy body that is black, some Boston painters use one or two coats of color, and follow with two or three coats of black body-varnish. No rubbing coats are then required, and a richness of effect is given which no amount of color could give. This latter method seems to be increasing in favor, and is highly to be recommended, for where one uses four or five coats of varnish over the color, each coat tends to alter it somewhat. It is used to a great extent in England. If the black body-varnish is not used, one coat of rubbing varnish is given after the color, and the striping is then done. Some painters stripe upon the color; but this is not to be recommended, for the striping does not then run so well, and if a wrong line is made, it is not so easily rubbed off as on the varnished surface. From one to three more coats of rubbing-varnish are added, each one being well rubbed, and a coat of finishing varnish, carefully applied, brings the job to an end.

When the carriage parts are received from the wood-shop, we prime them with P. W. F., and send them to the smithshop for ironing. When returned, we give them a second light coat of P. W. F. After puttying, some add one coat of lead over this, before sand-papering; but I do not think it is necessary, and seldom use it myself, except when a job is unusually rough. After sand-papering, the carriage parts are ready for color. Two coats of black will be enough, and the other colors must be adapted as to the body, some requiring more coats to give the required degree of depth. One coat of rubbing varnish is next given, rubbed, striped, and the job is finished with one coat of finishing varnish. Or, in the same way as with the body, one coat of black body-varnish may be given, if the job be black; rubbed, striped, and similarly finished. Truly yours, BOSTON PAINTER.

STAGE-DRIVER SENT TO CONGRESS.—The Hon. Ginery Twitchell, representative in Congress from the third Massachusetts district, turned back the wheels of time in a pleasant way on Wednesday, by driving a load of passengers from Worcester to the Barre cattle show in the identical coach he used to mount when a stage-driver thirty years ago.

CRAWLING OF VARNISH.

I HAVE been much interested in the theories put forth by your correspondents in explanation of the cause of crawling in varnish. One has ingeniously argued that it is due to an electrical attraction, and another that it is caused by the gloss of the under-coat which does not form a sufficient footing. Now I have always attributed this crawling to a very different cause from either of the above. Mine is an individual opinion, and whether correct or not, I leave to your good judgment and that of your readers, after you have considered the following explanation of it.

I have had a long experience at varnishing, and have found that crawling is always most liable to take place in the spring or fall, when the nights are cold and the fires have not been kept up. I see your correspondent in the September number notices this fact, but he attributes it to the reason that in cold weather the gloss of the under-coat comes up to a "harder sharp," as he expresses it, while I believe it is due merely to the uneven manner in which the last coat dries. It works in this way. It is a clear autumn afternoon, and I apply a rather heavy coat of finishing varnish to a set of carriage parts, and when I leave them at night they look very smooth and brilliant. It does not seem cool enough yet to have a fire, but in the night it comes up very chilly and there is a frost. When I look in at the carriage parts in the morning I find the varnish has crawled some, and a little later, when the room has warmed up, it continues to crawl badly. This seems due to the irregular drying, and I think could be prevented by preventing the sudden change of temperature.

Our correspondent is mistaken in describing the above as an instance of crawling. Crawling always takes place within an hour, if at all, and is never caused by an atmospheric influence, but is always due to the action of the coat beneath. The effect which he speaks of is what is commonly called "enameling," and is caused by a change of temperature after the surface has skimmed and while the under part is still soft and sensitive.

As there appears from this, and much of our general correspondence, to be a decided ambiguity in regard to the use of expressions describing the phenomena connected with the working of varnish, and moreover, a frequent misapprehension of the trouble itself, we shall attempt in subsequent numbers to throw a little light upon this dark subject. Varnish requires the utmost delicacy of manufacture and application, and from reason of the very difficulties which enshroud it, it is doubly important that all mysteries should be cleared away, that all its points, good or bad, should be understood, and that every means of obviating its troubles, or rendering them less troublesome, should be at the ready command of every varnisher. We have already described the general points connected with its working, such as its fluency, drying, hardening, and fullness, and have defined the precise meaning of each. We have also opened the question of Crawling, and drawn out several valuable points connected with its occurrence, and in coming numbers shall approach in a similar manner the other principal defects of varnish; its pitting, enameling, crimping, etc.; shall try to explain the cause of each, if we think we know the cause; shall point out such preventives as are known to us, and shall thus lay open this broad subject to the consideration of our readers, and shall look to them to fill in the rough outline

which is all that we can expect to give. We cordially and earnestly invite correspondence from practical workmen upon this important question, believing that we may thereby be enabled to gather together much valuable information, whose value shall redound to the benefit of every carriage and car-painter and every carriage and car-maker in this country.—*The Hub.*

LINSEED OIL AND WHITE LEAD.

Cheap oils are frequently mingled with linseed oil, which are so volatile that they will evaporate soon after the oil is employed for painting. It is sometimes exceedingly difficult to determine when pure linseed has been adulterated, except by a practical test in painting. When the paint does not dry readily, it will be safe to assume that the oil was not pure linseed. In some instances impurities may be detected by putting a piece of ice into a cup containing about half a pint of oil. If the oil be adulterated, the impurities will separate from the linseed oil, and will usually become stiff and thick like very soft lard.

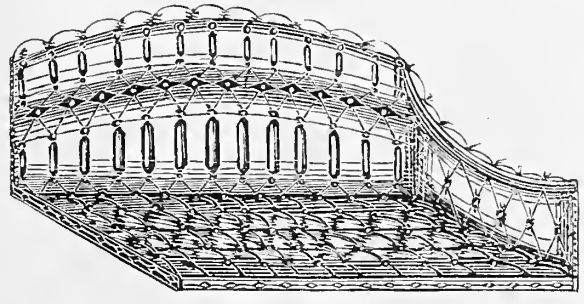
If the linseed has been boiled, and emits a very dark color as it is poured out, we may suspect that it has been scorched, and perhaps burned, while it was being boiled, or that it has been adulterated. Yet, if the ice test fails to show any impurities, and the oil dries satisfactorily when employed in painting, the quality is good, even when dark-colored.

When paint is ground in oil, a very poor quality of oil is often employed, and a large proportion of Spanish whiting is worked in, which is much lighter than either white or red lead, and of course will not form so thick a covering as pure lead. Adulterated lead paint, that has been ground in oil, is of a darker color, and the pails or kegs containing a certain number of pounds are much larger than other vessels in which there are an equal number of pounds of pure paint. T. S. E.

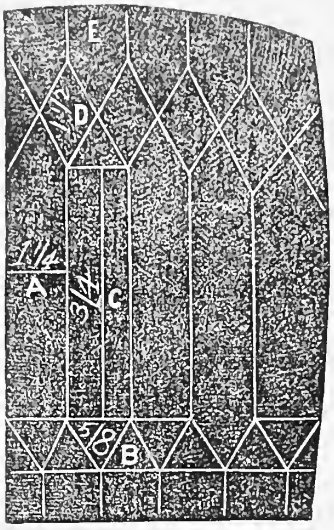
Trimming Room.

LINING FOR ROCKAWAY, ETC.

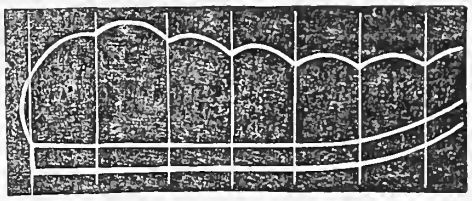
In making up his lining, the workman should find the center of the back, and then, by pattern, divide the whole into spaces for the pipes, as in the engraving. Next draw a straight line, 2½ inches up the back, then another, 3



inches higher, and above this another 3 inches higher still. When the pipes are 3½ inches long, let the next line be 6 inches. The spaces between the pipes should be 1¼ inches, as at A. From the bottom line to the next (B), give ⅝ inch, and where springs are used, allow ¾ of an inch fullness, as marked at D. Where no springs are used, ½ inch allowance will be amply sufficient, and 1½ inches for the diamond, E. Leave 5 inches from the top of the back for working.



In cutting the quarters, allow 1 inch between the pipes, and 1⅛ inches for the diamonds. In cutting the arm-pieces work from a straight line, and square as seen in Fig. 3, allowing ¾ of an inch between the buttons, 1½ inches front, and 2½ inches at the back, cutting with a sweep, as in the drawing.



In cutting the tops of the cushions, allow the same fullness as for the quarters.

When placing the back in the body, first nail it at the top, put the buttons in, pull it down to suit, and nail, finishing the top of the back, as in the first engraving.

Editor's Work-bench.

TRADE COMBINATIONS.

Some few months since it was very common to find the laboring classes clamoring against the "tyranny of capital," and organizing societies for the increase of wages. Many of these organizations are, nominally, still in existence; but their energies seem to have been paralyzed by evident decline in business throughout the country, and their manifest unpopularity in the public mind. Out of these, however, has grown a more formidable enemy to all enterprise—we allude to combinations in which capital and labor both unite in an unholy crusade against the public welfare. Of this kind is that of the Pennsylvania coal-miners, wherein miners and operators have come to a mutual understanding, with the common end in view of keeping up the prices of coal throughout the year. To do this, the miner has come to an agreement with the laborer, and placed a premium upon idleness. When the price of coal, in its downward tendency, reaches a certain point,

unsatisfactory to himself, the miner pays the operator for stopping work, out of a fund accumulated from a reserved percentage laid by when prices ruled high. By this means they intend to keep prices at a high figure, telling the public that the article is scarce—made so by their own scheming. Under the pressure everybody complains, and none louder than the poorer classes, whose interests are thus tampered with. This, however, is the natural result of "strikes." The capitalist, finding that he must go down under the unmerciful demands of his employees, seeks relief by taking labor into limited copartnership. This, perhaps, would work well, did everybody go into the same arrangement; but since everybody does not, the party left out must suffer the consequences, for which a remedy appears to be lacking.

In the minds of many, speculation is an evil to be condemned, and yet, could it be suppressed by law, it would soon crush the life out of every enterprise in business. It has been truthfully said, that "when the activity of men is so fettered that speculation becomes impossible, they labor like brutes for their daily sustenance and shelter only." It is true that all attempts to force up the prices of either goods or labor, possess the elements of speculation; but speculations of this nature must eventually end in disaster, because they are unnatural, and contrary to the manifest laws of trade, which cannot be contravened with impunity.

The non-thinking classes are those generally led into "striking" for higher wages, unmindful that in doing so they are themselves engaging in the very speculations they are so ready to condemn in others. The leaders promise their dupes that if they will only send them, *in propria persona*, to the legislative halls of the nation, they will have such laws enacted as will provide a remedy for all their grievances forthwith. These laws shall say to capitalists among mechanics, "You shall *only* have a certain number of apprentices in such shops, and besides shall pay equal wages for eight hours as heretofore done for ten," and so on, *ad infinitum*. What else is this but speculating against capital, and speculation of an odious character? This kind of speculation, however, provides an antidote for itself, which consists in overdoing matters. Were this not the case, every workingman would soon find himself prevented from ever becoming an employer, from obstructions laid by himself. This fact is so apparent to intelligent minds, that the whole thing becomes ridiculous, when looked upon in its proper light. There is just as much reason in obliging a manufacturer to take more as to take less workmen, and just as much shown in telling him that he shall pay so much, and no more wages, than a certain figure. We contend the whole thing is wrong. Trade should be left untrammeled, either with legislation or combination, to the operations of competition, which will in time work its own cure.

TWICE EARNED.

WE are much annoyed by requests such as the following:

MR. E. M. STRATTON,—If you will send me a first-class carriage-painter within a short time, I will send you the money for your magazine for one year, &c."

Now, there are two good reasons why we cannot comply with the wishes of our rural correspondent: First, we think the Magazine is worth all we charge for it, without additional labor thrown in, to induce him to give us his patronage; and, secondly, those who want hands should advertise for the same, and thus encourage literature, while benefiting themselves. There is, it is true, in this case, one redeeming circumstance—the individual referred to has never been blessed with monthly visits from us, and is therefore ignorant of how much benefit we *might* have been to him, and which never will be known if he waits for us to earn a subscription in the way he proposes. Ours may be a selfish resolve, but unavoidable.

We would observe, while on this subject, that our position too often imposes requests on us with which we cannot comply, except at much sacrifice. Frequently we are asked to send a correspondent the price of something out of our line of business; and not knowing where the article is for sale, are compelled to either spend half a day's labor in hunting it up, at some expense for car-fare, or else refuse altogether. This last course we have fully decided to take, unless correspondents send us at least twenty-five cents, to cover expenses actually incurred in our efforts to serve them. Some unreasonable men seem to think that when they subscribe for our Magazine, they have paid for our services for the current year at least, without further charge, and get out of humor unless we do their bidding gratis. Now, this is all wrong. When we *sell* the Magazine, we sell nothing else. If we *give* extra labor on the score of friendship, that is another matter. But, gentlemen, please do not trouble us with unnecessary business, when avoidable. We have already more than we can well attend to.

PERPETUAL MOTION.

FOR over half a century experimenting has been going on in the back shops and obscure rooms of the would-be discoverers of perpetual motion, with very poor success. It is true that we have several times seen it announced that the thing had been accomplished successfully, but up to this present writing the machine has never fulfilled the promises of the inventors. The following construction of a machine, that may be relied upon to run *until it dries up*, is translated from a German periodical, the *Practical Machine-Builder:*

"Place several small troughs, one a little higher than the other, stair-wise. Fill the lower trough with oil, and suspend over it a number of wicks, so that their upper

ends shall hang over the edge of the second trough, while their lower ends dip into the oil. From the second trough a series of wicks in like manner reach up to the third, and so on. It is evident that in this way a certain amount of oil will constantly mount from the lowest to the highest trough. From the latter the oil may be allowed to flow through a pipe upon an overshot wheel, and thus to descend again into ts original receptacle. The wheel will be kept in perpetual motion.

Now let the philosophers calculate for us how many wicks make a horse-power; or, if they are inclined to speculate more boldly, let them study this mysterious capillary force, which does not seem to wear out, like other agencies. Will there come a time when

> The stars are old,
> And the sun is cold,
> And gravitation will not hold,
> And fuel is worth its weight in gold,

and the universe will fall back on suction as a motive power? We don't promise to issue a weekly supplement containing the responses of the wise to these queries. In fact, though we ask these questions, it is after the manner of the orator, who would be considerably put out if anybody answered him."

"THERE WERE GIANTS IN THOSE DAYS."

The inhabitants of the valley of Onondaga Creek, and in fact the people of the entire State of New York, have been much excited in regard to a colossal statue of gypsum, representing in faulty anatomy a man asleep, dug up from the earth in sinking a well. The theories in regard to this Cardiff Giant (the name by which it is known), are as varied as are the minds of the persons discussing the subject. Some believe it a petrified man of other days; others think it an unmitigated humbug, nothing more than the unskillful chiseling of a fourth-rate stone-cutter. This latter class of thinkers are doubtless the correct ones. In the mean time there are two giants in the field—one in Albany and another in this city—on exhibition, both "the original, genuine" giant found in Central New York.

It is really laughable to read the long rigmarole speculations of Prof. Hall, Dr. Woolworth, *et id omne genus*, who were so hasty in their researches that they did not even wait for the bringing of the body to the surface, but went down into the pit to test the strength of the carbonic acid gas in the water thereof, in order to discover whether the water could dissolve the material of the statue as rapidly as some claim. Among other things they made the discovery that the left leg was softer where it had been disintegrated than on the outer surface; and their "gassy" theories, when properly investigated, evidently show that the brains of the philosophers are either *softer* than usual, or else they look upon the public as fair subjects for their "soft sawder."

Divesting the thing of all the mystery which others have contrived to throw over the "stonish giant," we at least believe it to be a miserable humbug, got up by some parties who are converts to Barnum's belief—that "the public likes to be humbugged." With this idea to start with, some rustic stone-cutter conceived the plan of cutting out a giant, and afterward burying it deep enough to give it a decent antiquarian appearance, and then, under the pretense of digging a well, digging it up again to astonish the world with their *wonderful discovery*. No doubt that, like the thousand and one wonders which time has hatched for a credulous age, these giant finders will realize from the pockets of the many *a giant* fortune. *Vive la humbug!*

LADIES' FASHIONS AND COACHES.

More than two hundred years ago—in 1650—after coaches had undergone opposition, and survived the onslaught of Taylor, the Waterman of the Thames—who imagined, like the Ephesian shrine-makers in Paul's day, that his craft was endangered by their growing popularity—strange as it may appear, the ladies adopted figures of them as ornaments to their persons. In a work by one Palgrave, entitled "Artificial Changeling," there is an illustration of a lady's face, showing that it was then fashionable for them to ridiculously—as in some things now—spot their faces, and among other absurdities, figures in black of a coach, with horses, coachman, and postilion, appear prominently on the forehead. In another work, called "God's Voice against Pride in Apparel," published in 1663, the author says: "Methinks the mourning-coach and horse, all in black, and plying on their foreheads, stand ready harnessed to whirl them" (the ladies) "to Acheron." In the "Ladies' Directory," published in 1674, it is said that the ladies "had no doubt got a room in the Chronicles among the prodigies and monstrous beasts, had they been born with moons, stars, crosses, and lozenges upon their cheeks, especially had they brought into the world with them a coach and horses."

Looking at this matter through an historical glass, and speculating in the unchangeableness of human nature, we are naturally led to conclude that we have had a very narrow escape, lately, from the painful result of seeing our feminine world decked out with figures of velocipedes, after the manner of our grandmothers, before noticed; for nothing, apparently, is too ridiculous for the votaries of fashion to adopt. The present style of ladies' hats is well adapted for encouraging this kind of ornamentation, the face being wholly exposed, and seemingly requiring something to relieve the monotony of facial surface, now only relieved by such natural figures as nose and mouth, too common for popularity, in the usual acceptation of the term. Some of the fashions now adopted by females are just about as absurd as those were years ago, and are no less ridiculous than wearing vehicles on the face, as im-

provements for a naturally pretty countenance. But we must stop or consent to be called "old fogyish," a name which, with our peculiar notions of men and things, we are not anxious to receive.

REVIEW OF TRADE.

WE, last month, told our readers that trade was extremely dull. This month, instead of improvement, we find that matters have gone on from bad to worse—trade being literally dead. The stringency in the money market, seriously affecting all departments of business, is especially severe on the carriage manufacturer, who, with a large stock of vehicles in his shop for which he has no sale, finds it extremely hard to discharge his obligations with becoming promptness. This state of things has compelled the principal establishments of this city to discharge many of their hands, and put the remainder of them on "three-quarter time," at which they murmur exceedingly, although they decline to accept lower wages than heretofore. This state of affairs is unpleasant for both parties. The manufacturer cannot now safely make up work, costing high, to sell low next spring, which he must certainly do should finances come to a specie basis through action of Congress, or continued depression in trade. With the large stock of carriages now in the market, we still advise our readers to observe caution and not increase their liabilities beyond control, by manufacturing carriages for an uncertain spring trade, and thus unreasonably risk their standing and credit.

LITERARY NOTICES.

THE WORLD ON WHEELS.—This book, previously announced, is rapidly going on toward completion. We hope to have it through the press during the present year, or early part of the next. It will make a large royal octavo volume of six or seven hundred pages, and be printed on fine paper, with handsome type, and illustrated with about four hundred engravings of carriages, from the days of the Pharaohs to the present time. The subject-matter will be the "carriages and customs" of the Egyptians, Assyrians, Persians, Grecians, Romans—including dependencies—Gauls (French), English, and American, with incidental illustrations of the vehicles of these nations in chronological order, and narrating the manners and customs connected with their usages, such as marriages, funerals, wars, and worship, in a novel and interesting way, interspersed with historical anecdote. We have shown or explained our work to several literary men, who give it as their opinion that it will not only prove entertaining but a valuable contribution to history, and useful as a book of reference, not only in the library of the carriage-builder and his special patrons, but likewise in the collections of intelligent and literary men. We have some names as subscribers already, and are ready to receive others. We do not ask for money until the volume is placed in your hands—only your names now. Address to this office.

We have on hand a number of copies of our fine charts, Nos. 5, 6, and 7, which we now offer at half price —50 cents a copy—with the object of clearing them off. No chart ever published in this country better represents the prevailing fashions than these, nor have they ever been offered so low before. As this offer will only remain open until the first of May, it will be to the interest of our friends to send for them at once, inclosing the money with the order. Charts of carriages have now become the indispensable adjuncts of every well-conducted shop, not only ornamental to the office, but exceedingly useful in obtaining orders for carriages, as many can witness. Customers unacquainted with technicalities, with a chart before them, can make themselves plainly understood.

As usual, the commencement of a new year gives fresh impetus to journalism. Among those early in the field is our old friend the *Phrenological Journal*, now half a century old, which appears in a new dress, fresh and blooming as the spring—"a blaze of beauty." It has now assumed the octavo form of 80 pp. monthly, with an addition of 20 pp. advertisements and cover. The price is still $3 only, and is published by S. R. Wells, 389 Broadway, New York.

EDITORIAL CHIPS AND SHAVINGS.

THE COLORS OF FOLIAGE.—The London *Athenæum* says: "Experiments have confirmed the conclusion of an American scientist that leaves turn red, at the end of the season, through the action of an acid, since one of the elements producing the green color must be a vegetable blue. Autumnal leaves placed under a receiver, with the vapor of ammonia, in nearly every instance lost the red color and renewed their green. In some, such as the sassafras, blackberry, and maple, the change was rapid, and could be watched by the eye, while others, particularly certain oaks, turned gradually brown, without showing any appearance of green."

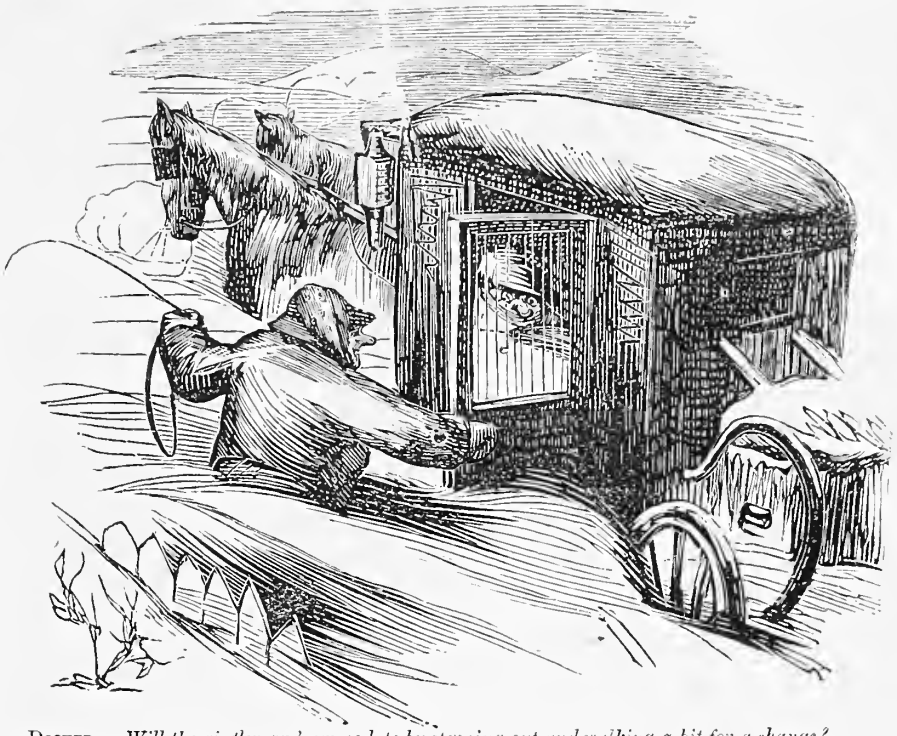
THE DIAMETER OF TREES.—In a paper addressed to the Academy of Toulouse, M. Musset states that all the large healthy trees of the woods of Ville-d'Avray and St. Cloud are, in the immense majority of cases, thicker in the direction from east to west than in the contrary one. The same circumstance has been noticed elsewhere by other observers.

LONG ISLAND STEEL.—A company has been formed to make steel out of the iron ore recently found at Quogue, near the east end of Long Island. The ore is comprised in the dark mineral sand on the beach, and is found in large quantities. It was discovered by a chemist, who has purchased a large tract on the beach, and is to put up a blast furnace and trip-hammer at once.

A NEVADA WAGON.—The largest wagon ever built on the Pacific coast has recently been completed at Hamilton, White Pine, and is to be used for transporting ore

from the South Aurora Mine to the Stanford Mill. Here are some of the dimensions:—The spindles are 4 inches in diameter of the best quality of iron; tires, 5 inches wide by 1½ inches thick; spokes, 5 inches thick; hubs, 19 inches in diameter, by 20 inches long; height of the hind wheels, 6 feet 9 inches. The bed is capable of holding 36,000 pounds of ore, and the wagon is estimated to bear up 40,000 pounds over any ordinary mountain road. When first built, 32,500 pounds of quartz were hauled on it from Gold Hill to one of the mills about Dayton. The two larger wheels weigh 1,064 pounds each, and the entire rig upwards of 8,000 pounds.

Egyptian Account of Moses. —At the recent convention of Philologists at Wurzburg, Dr. Lanth, of Munich, stated that in translating some Egyptian papyrus rolls he found an account of a personage whom he believed to be Moses. The person, who is called Mesu, is accused by the Egyptian writer of having taken a sea-bath, and of eating fish forbidden to the priesthood; that he had made a secret visit to Syria, and was too much given to say new things upon religious matters. Mesu is described as handsome, and of irascible temperament. In addition to the name Mesu, which signifies "child," it is stated that he has another which may be translated "basket of rushes." The date of the report is the fifty-second year of Rameses, corresponding to 1525 B. C.



Driver.— *Will the gintleman 'commodate by stepping out and walking a bit for a change?*
Passenger.— *Wa'll, now, aint that cool?*

The Mechanics' Institute of San Francisco.—From a correspondent, we learn that the Fair of the San Francisco Mechanics' Institute, just closed, will net the Institute about $35,000, the receipts having been about $65,000. The sum of $25,000 will be paid out upon the debt for the building, and $10,000 will be expended for books and philosophical apparatus. This institution is one of the best managed and most successful in the country.

The Rascally Hackman.—We have frequently had occasion to acquaint our readers with the tricks of New York hackmen, and now we add another to the long catalogue of sins committed by these worthies, which we take from a daily paper. Richard E. Kelly left his home in New Concord, Ky., for Eastman College, Poughkeepsie, N. Y., by the Pan Handle route, stowing $230 in his bootleg for safety; but just before the train reached Jersey City, he transferred the money from the boot to his pantaloons pocket. When the cars stopped, he passed aboard the ferry-boat, and while crossing the river inquired about his baggage. A "gentleman" told him his baggage would be there as quick as he was. On arriving on the New York side, he inquired how he would get conveyance to the Hudson River Railroad dépôt. Another "gentleman" stepped up to him and said, "I am going around there and will carry you." This "gentleman" had a coach. "Coachee" added, "Give me your check and get in there; I will bring your baggage in a few moments." Mr. Kelly entered the coach, when soon after "Coachee" returned and said, "Your baggage will be on the next train; it was delayed." Just then some one called "Coachee," when he shut the door, mounted his box, and drove off. He did not go far, however, when he dismounted, the door of the hack was opened, and another "gentleman" requested the student to get out and mount the driver's box, which he refused to do. Then still another "gentleman" came upon the scene and said to the student, "I am going to the Hudson River Railroad dépôt, go with me." Thereupon the student alighted and entered coach No. 2, and after being in it a few moments was told by the driver "here's another man going to the same place you are; both of you remain here till I get your baggage;" and then the "other man" got in the hack and seated himself by the side of the student. Each congratulated the other upon the prospect of having company through to their destination, when finally the "other man" said, "I am getting cold. Let us go to the fire and stay while the driver is getting our baggage?" The student replied, "No. I want to go on as soon as he comes back." The "other man" made no reply, and silence ensued for a moment or two, when the other man said, "Well, I must go to the fire," and got out. Immediately afterward the Kentuckian missed his wallet. The driver returned shortly after without the baggage, when the student informed him of his loss. The driver, handing him his empty wallet, said: "Here's your pocketbook, you've been robbed; I want your fare." The student inquired how much it was, and was told that it was five dollars. Remembering that he

had ten or fifteen dollars in his vest pocket, he paid the amount asked, the coach-door was closed, the driver mounted the box and drove three blocks, when the coach was stopped, the door again opened, and the student told to get out and take the street-car, which he did, and that's all. He is minus his money and baggage.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, Dec. 24, 1869.

Apron hooks and rings, per gross, $1 *a* $1.50
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 7½c.
Axles, plain taper, 1 in. and under, $5.50; 1⅛, $6.50; 1¼, $7.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $7.50; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half pat., 1 in. $10; 1⅛, $11; 1¼, $13; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅝ in., $11.00; ¾, $11; ⅞, $12.00; long drafts, $2.50 extra.

☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.

Bands, plated rim, 3 in., $1.75; 3 in., $2, larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Bolts, Philadelphia, list. 35 off.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 18 *a* 23c.
Burlap, per yard, 10 *a* 14c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, $1.75 *a* $2; velvet, $2.75 *a* $4; oil-cloth, 45 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $2, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $15 *a* $22.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.75 *a* $2.
Dnameled cloth, muslin, 5-4, 35c.; 6-4, 60c.
Dnameled Drills, 48 in., 50c.; 5-4, 45c.
Do. Ducks, 50 in., 70c.; 54, 60c.; 64, 80c.

☞ No quotations for other enameled goods.

Felloe plates, wrought, per lb., all sizes, 15 to 18c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.50 *a* $2.00.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.

☞ For a buggy-top two pieces are required, and sometimes three.

Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $1.75.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach, $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 25c.; railing do. 23c.; soft dash, No. 1, 15c.; do., No. 2, 12c.; hard dash, 15c.; split do., 15c.; No. 1, top, 25c.; enameled top, No. 1, 25c., do., No. 2, 23c.; enameled trimming, 23c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, pergross, 50c.
Name-plates. (See Advertisement.)
Oils, boiled, per gal., $1.25.
Paints. White lead, extra, $13.00, pure, $14.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $6 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Sand paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's 40 off per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 15c.; bright, 16c.; English (tempered), 20c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.

☞ Two springs for a buggy weigh about 23 lbs. If both 4 plate, 34 to 40 lbs.

Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.

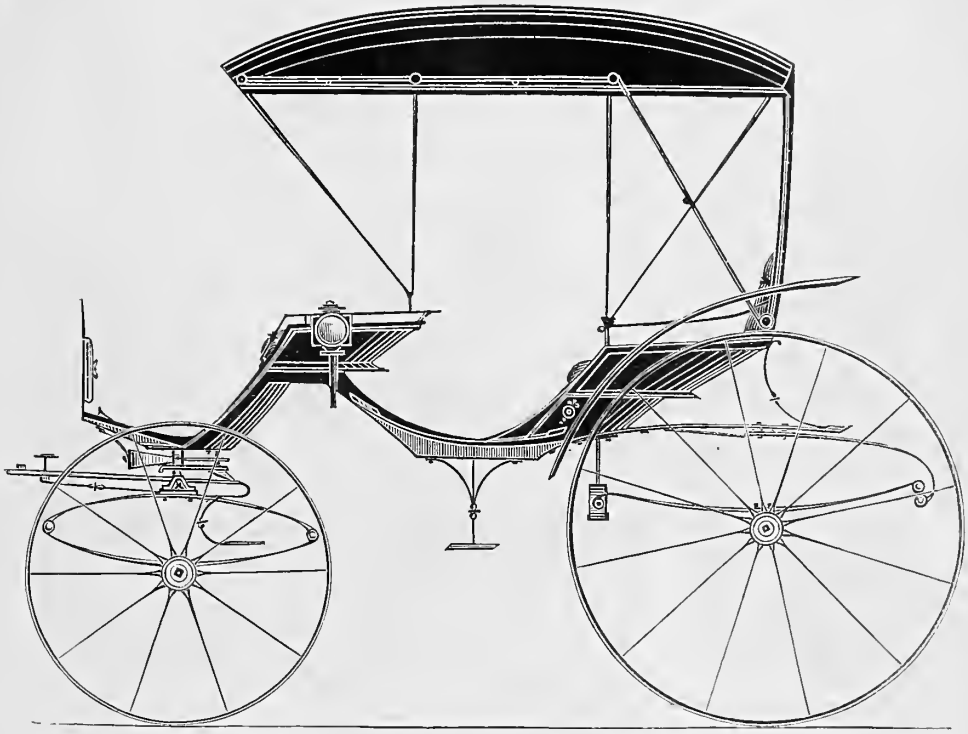
☞ For extra hickory the charges are 10c. *a* 12½c. each.

Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 15c.; 1-4 x 1, 15c.; 3-16 x 1 1-8, 16c.; 3-16 x 1, 16c.; 3-16 x 7-8, 17c,; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12: acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close-plated nuts and rivets, 75*a*80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2 Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 53c
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.00; nonpareil, $5.25.
Do. English, $6.25 to $7.50 in gold, or equivalent in currency.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Whiffle trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.

CRANE-NECK HEARSE.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

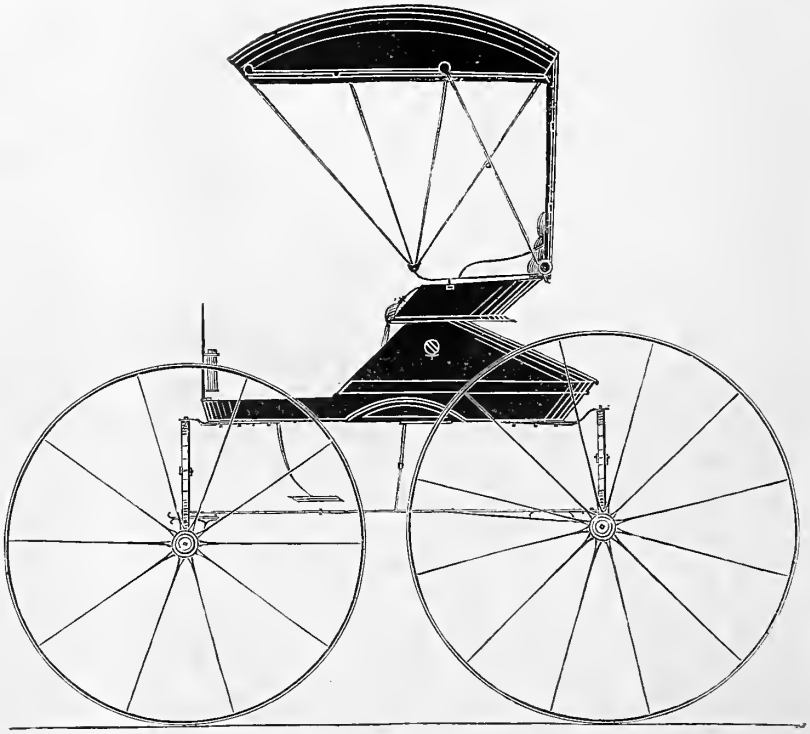
Explained on page 136.



EXTENSION-TOP CABRIOLET. — ½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

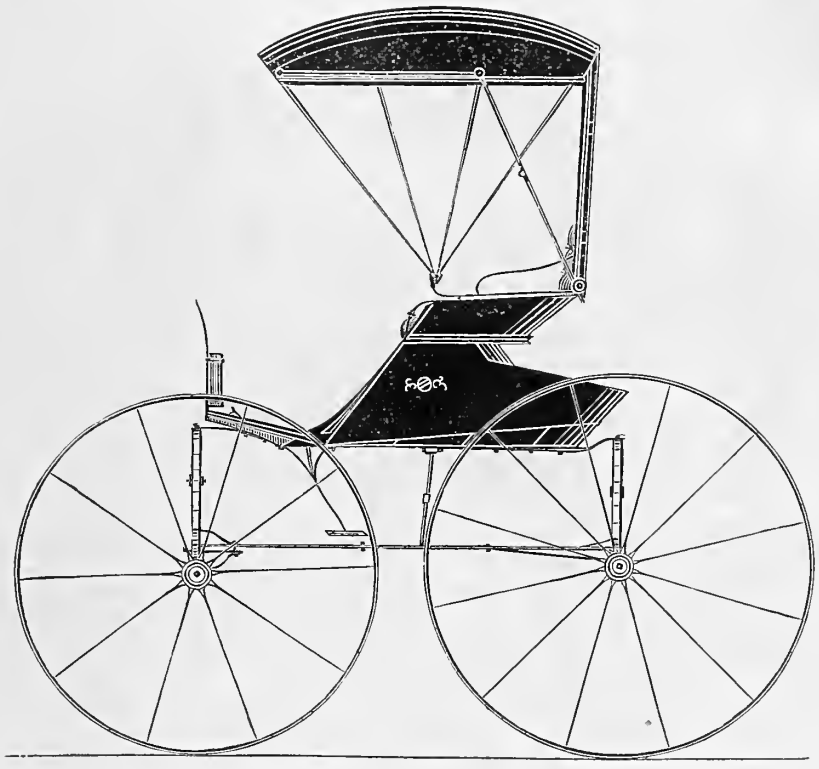
Explained on page 136.



ROUND CORNERED BOX-BUGGY. —½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 136.



COAL-BOX BUGGY. — ½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 137.

THE NEW YORK
Printer's Monthly Magazine

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XI. NEW YORK, FEBRUARY, 1870. No. 9.

Mechanical Literature.

THE ADVENTURES OF THREE JOURS.

BY H. S. WILLIAMS.

Chapter VIII.

"So you have had a pretty hard time of it I should judge by the brief letters we have received from you," said Gloner, that night after they had eaten supper.

"Well, yes, rather hard, particularly after I left Panola," he answered. "But, if you wish it, I will give you a brief history of my trip, for it is rather amusing now to think of, after it is all over. Let's have one of your cigars, I can always talk better when I'm smoking." After lighting it and drawing a few whiffs, he commenced as follows:—

After leaving you at Memphis, I went up town to my old boss' shop, and my first greeting was, as he shook my hand, "Why, Margrave, what lucky wind blew you down this way? You are the very man I wish to see." Come to find out, he had an old omnibus that he had bought somewhere on speculation, and was fixing it up to run between the river landing and the hotels, and as there was no trimming in it, the reason of his delight at seeing me was no longer a secret.

As the holidays were near, and as business is always dull in our line about that time, I concluded to remain until New Year's, so a bargain was soon made between us, and the next morning I went to work on it. I finished it off, and we hung it up on the 24th, and Christmas morning the boss had two pair of horses hitched to it, and all hands took a *Spludge* in it during the day.

During holiday week I visited all my old friends, and among the rest the girl you joked me about in St. Louis, as you may remember. I found her as pretty as ever and a little more mischievous, if anything. In fact, she appeared overjoyed to see me, and as I was received every time I called with marked attention, I concluded I was getting on swimmingly, which supposition was firmly established in my mind by her inviting me very cordially to attend a little social gathering at her home on New Year's Eve. Of course I accepted, and what is more, I even went to the extra expense of buying a new coat, and several little articles of toilet, which, under any other circumstances, I would have thought uncalled for extravagance. On entering the rooms I was somewhat surprised to see so many there, and still more so when, on taking a survey of the company, I failed to find the principal object of my thoughts.

One of my acquaintances met me with the remark, "Why, Margrave, can it be possible that you summoned up courage enough to come here; I should sooner have expected you in the solitude of your room, either studying the works of some cynical philosopher, or contemplating suicide. But, however, there's as good fish in the sea as ever was caught, you know," and with a laugh he left me. Just then the doors from an adjoining room were opened, a gentleman with a white necktie entered with a book in his hand, who took a position on one side, and,—well that girl had the effrontery to marry a dry-goods clerk right there before my eyes. The next morning I felt disgusted with the whole world, and with Memphis in particular; so I concluded to leave it.

A semi-weekly stage-line extended to Hernando, Mississippi, twenty miles distant, and as the coach left next morning, I determined to start out. The roads were rather bad and it was midnight when we reached Hernando. I went to bed soon after supper, and when I woke up the sun was shining in my room. On going down I found the stage for Panola had been gone an hour. After breakfast I went out in town and found an old dilapidated carriage-shop, but no boss, so I concluded to go on as soon as possible. Returning to the hotel the landlord informed me that there would be no public conveyance to Panola for three days, which rather staggered me. What to do I did not know, and while studying on it, a young man stepped up and asked if I wanted to go to Panola. I informed him I did. "Well," he continued, "my name is Stirling, and I am a tailor by trade; I can get nothing to do here, and I want to go to Panola; so I propose we work our passage. It's only thirty miles, and the road is good." In a few moments I acceded to his proposition, and after settling with the landlord, we put out. For ten miles or so the road proved to be good; then, as we entered the low swampy lands bordering on streams, it became very bad. When night came we found shelter and a poor supper at a log farm-house, but as I was tired and footsore, I was satisfied with anything. We found a third traveler there, a young man of rather prepossessing appearance, who informed us that he was a printer on a

tramp, and he expected a job at Panola. After a late breakfast next morning, we started out very leisurely, for we expected to stay over night in Panola, even though we did not get jobs, and as it was only ten miles we concluded that we had plenty of time. Passing through a low swampy bottom, we reached the Talahatchie river, and the old darkey ferryman who put us across, told us that the town was just a quarter of a mile beyond. We found it a small place, principally noted as being the court-house town for the county of the same name. Putting up at the hotel we all started out to hunt a job. It took just fifteen minutes to find out three things, viz., the editor and proprietor of the *Star* done all his own work with the assistance of his devil; the only tailor in town had nothing to do; and there was no carriage shop in the place. After obtaining these several pieces of information we returned to the hotel, and took things easy for the balance of the day.

The next morning I was awakened by the bell ringing for breakfast; Stirling and myself occupied one bed, and on getting up we were rather surprised to find that the printer who occupied the same room was gone. On dressing I found my overcoat and pocketbook were gone too.

"Confound the rascal, he has stolen them," I exclaimed.

"Has he got all your money?" asked Stirling in alarm.

"All that was in my pocket-book, but I have five or six dollars in change in my vest pocket."

"Well that's a good thing," returned Stirling.

"Why so?" I asked, "has he stolen your money too?"

"No, not stolen it, for the best reason in the world."

"And what is that?"

"I had none to steal."

"What, you out of money?"

"With the exception of two bits in silver and a five dollar bill on a broken bank, I most undoubtedly am."

"Well, this is a pretty state of things; what shall we do?" I asked.

"Settle with the landlord and get out of town as soon as possible," replied Stirling.

On making inquiries no one had seen the printer since the night before; so I knew search for him would be useless, and I decided to take Stirling's advice. After breakfast I went to settle up with the landlord, and he actually wanted me to pay the printer's bill too, and he had the impudence to hint that I was acting dishonorably when I refused.

"Let's take the road back to the river," exclaimed Stirling, as we left the hotel. On getting out of town, he continued, "The best plan we can pursue is to get a boat and travel down the Talahatchie as far as Yazoo city; there we'll be sure to get work, and its the cheapest as well as the easiest way to travel."

I readily assented, and on reaching the river, we soon bargained with the old ferryman for a dug-out, for which I paid a dollar and a-half. In this we stowed ourselves, with what little baggage we had, and Stirling taking the paddle, we started down stream at a good speed. We were certainly in anything but an enviable condition. I had two dollars and some few cents, while Stirling, who had invested his two bits in a plug of tobacco, had nothing but the broken bank bill. We continued our journey until the sun had passed the meridian, when our appetites suggested the idea of stopping at the first clearing we could find and hunting up a cabin or farm-house. We soon reached a cleared field to the right, and tieing our dug-out to a root, we clambered up the bank. A house was in sight half a mile distant, and on reaching it we were rather curtly informed that we might have dinner, although it was long after their regular dinner hour. It was a pretty rough meal, nothing but corn-bread and bacon, and for a wonder the old farmer did not charge us anything for it.

After being informed that we might reach the village at the mouth of Clear Water River by dark, if we pushed ahead pretty rapidly, we left him and pursued our studies in the art of navigation. It was a wild but very romantic scene as we descended the river, huge trees almost met above our heads, nearly all of which were loaded with trailing vines, and long festoons of moss that swayed to and fro in the breeze, presenting a sombre and dreary appearance. The sun had already set, and darkness had begun to gather around us, with no sign of the village nor the mouth of the Clear Water, when our further progress was barred by a huge cottonwood tree that had fallen entirely across the river.

If the tree alone had been in the way we could easily have pulled our boat over it, but it had formed a barrier for all the drift wood that had floated down during that stage of water, so that the drift was twenty yards wide, and as it was all afloat, it presented no secure footing on which one could stand.

"Here's a pretty go," exclaimed Stirling, as our dug-out swung round and took up its position by the side of the drift.

"Yes, a fine prospect for a night in the woods," said I. "But let's land and see what we can do."

It took us a long time to do so, however, for the bank on either side was steep and slippery with mud, so that it was very dark by the time we reached the top.

"Let's try and pull up the dug-out," I exclaimed.

"Impossible," answered Stirling. "It is large, water-sogged, and so heavy that four men could not pull it up this bank."

A single trial convinced me of the truth of his assertion. "Well, what shall we do?" I asked.

"If we knew the way to that village, or to the nearest house, I could answer at once; but as it is, we will, in all probability, have to stay here all night."

In a few minutes we had a rousing fire started, for Stirling fortunately had some matches in his pocket. As the night was chilly, a good fire was very agreeable, and for an hour or so we felt quite comfortable. Then we got very drowsy; and as we had no blankets or overcoats, we could not make a bed, but had to sit up by the fire. That night was a long and dreary one. In the broad and heavily timbered bottoms, that stretched away on either side of the river, we could hear the wolves and other wild animals howl during the entire night; and one tremendous owl lit directly above our heads, and made night hideous with its dismal cries. When you reflect that the most formidable weapon we had was a pocket-knife, you can better realize our situation. As for sleep, it was simply impossible. At times we would doze off in a nap, but it was of short duration. As I said before, it was a long and dreary night; and no watcher at the bedside of the sick ever welcomed the coming morn, "with russet mantle

clad," as gladly as I did. As soon as it was fairly light enough to see, we went down and took a survey of the situation. Near the center of the river the log was the lowest in the water, in fact the stream ran over it for a few feet; and if we could but work our way to it, getting over would be but a small matter. We were hungry and tired—two great incentives to exertion,—so we got in our dug-out, and went to work with a will. The removal of the immense pile of drift-wood so that we could force a passage through may appear a small job to you, but in reality it was an arduous undertaking. For hours we worked there; and often, just as we would get one log out of the way, another would swing round in its place before we could get our boat there, so that it was noon before we reached the tree. Then we got out, and by a good strong pull we succeeded in launching our craft on the other side. Then starting down stream we had a chance to rest after our hard forenoon's work. In half an hour we reached the mouth of the Clear Water, and were slightly surprised to find that the *village* consisted of a blacksmith's shop, two dwelling-houses, and a few dilapidated out-buildings. We managed, however, to get a pretty fair meal of victuals at the smith's house, but had to pay city prices for it—viz. four bits. Just as I had settled for my dinner a gentleman approached us, and walking up to my companion, asked if his name was Stirling. On being answered in the affirmative, he informed us that he was a deputy sheriff from Panola, and had come down for the purpose of collecting five dollars for a dug-out that we had taken from the ferry. That rather surprised us; and on our informing him that we had bought the boat and paid for it, he laughed at us, and told us that the owner of the ferry had sent him, and we must pay the V., or return with him to Panola. That, of course, was not to be thought of; and after arguing the matter without avail, Stirling drew out his five dollar broken-bank bill and said that that was all the money he had, but if he would take it, why he supposed he would have to part with it.

The deputy seemed highly elated with his good luck, and fairly grabbed it; when bidding us good day, he got on his horse and left. Come to find out, he had arrived at the village the night before, and as he had rode thirty miles, paid his own bills, and had thirty more miles yet to go, we did not envy him his luck.

On making inquiries for the nearest town of any importance, we finally concluded to sell our dug-out, and take it afoot to Helena on the Mississippi River—a distance of about fifty miles through the great river bottoms,—rather than try the river any further. Stirling finally made a bargain with our host to let him have the dug-out for his dinner, the smith to put us both across the Clear Water.

The sun was about two hours high when we were landed on the western bank, and shouldering what little plunder we had, we started out at a brisk pace. We had gone some five or six miles when darkness fairly set in—having passed some two or three houses without stopping—when it was deemed advisable to seek for lodgings. At the first house we stopped at they had no room; but there was a house a couple of hundred yards further on where they could accommodate us. The couple of hundred yards proved a good long mile, and when the house was reached we were again refused, with the positive information that at the next house they would take us in. The next house proved a small, rough log-cabin; but as it was too dark and too late to be very fastidious about appearances, we opened the rude gate and entered. We were met by two huge dogs, who halted us in fine style, when the door of the cabin was opened, and we were hailed with "Who's thar?"

"Keep your dogs off and we'll tell you," I replied as we advanced.

"We are a couple of travelers," I continued as we reached the house, "and we want accommodations for the night. Don't make any excuse, for we're willing to rough it; and it is simply impossible to go any further, as we do not know the road, and we have no desire to be lost in this wilderness; so do the best you can, and we'll be satisfied."

"Wall, strangers," he answered in true backwoods style, "I guess we'll have to let you stay, providing you'll pay me for your lodgings."

"We do not expect to stay without paying," I replied, with as much independence as though I had a hundred dollars in my pocket, instead of less than a hundred cents. "So be so kind as to order supper for us, as our long afternoon's tramp has made us hungry."

"Certainly," he answered, "come in, though I don't see for my life where you will sleep, for we have only two beds—one of which I occupy with the old woman and baby, and the other is a single one where the two gals sleep; but, however, we'll manage it somehow."

Without more ado we entered and took a seat by the fire, for the evening was quite chilly. In half an hour supper was ready, and we sat down to fried chicken, hot biscuit, honey, and coffee, to which we did ample justice. Supper over, we took our seats by the fire again, and passed a very pleasant evening, telling our host of the great world beyond the wilderness in which he lived, and of which he was totally ignorant; while he in turn told us some tough yarns about his hunting *bar* in the great swamps beyond.

"So you're goin' to Helena, hey? Wall now, look o' here, I woul'ent care about taking that trip, at this time o' year in particular; if it was in the summer, now, or fall, you'd get through all right, but its an awful road now. The water is up over the bottoms in places, the roads through the swamps are knee deep in mud, and I think you'll encounter many difficulties that you'll hardly be able to surmount. And then its fifty long miles, with only two or three houses in the whole distance."

Notwithstanding this rather gloomy picture, we were still determined to proceed; and when we all got tired of talking, we went to bed—and such a bed! It was only about three feet wide, and made out of pine poles nailed up in one corner of the house. The mattress was an old sack filled with broom-sedge; and as it was higher in the middle than at either edge, one felt a natural tendency to roll out. As I managed to get in first, I rolled down against the logs, and thus felt secure from going any further; yet I passed a most uncomfortable night. Despite my vigils of the night before, the barking of the dogs, and hooting of the owls, kept me very restless, and I hailed the first faint streaks of daylight with joyful relief. After a very fair breakfast, I approached our host with a little fear and trembling, and inquired what our bill was.

"Wall," he said, taking a big quid of tobacco in his mouth, "wall, strangers, you know we can't live and feed

every one that comes along for nothin', so I guess as how I'll have to tax you about twenty-five cents for your accommodations."

You may surmise that I paid it without a word, and, bidding him and his buxom spouse good-by, we started out, but not without his yelling at us as we gained the road, "Be careful to observe the blazes on the trees, or you'll get lost sure, after you strike the swamp, and you wont see a house under twenty-five miles; when you do, better stop for the night, if you're lucky enough to get that far to-day."

Right merrily we trudged on, singing and conversing in gleeful tones, and at the first resting-place, Stirling remarked, "Our experience on the Tallahatchie convinces me that we ought to have some sort of a weapon to defend ourselves with, so as I happened to find this thing this morning, I concluded to bring it along;" and he drew out a huge home-made bowie-knife, and flourished it around in a style that would have done honor to a Natchez blackleg. We trudged on, and soon lost the regular wagon-road, and then plunged into the swamp, with only a blazed trail to guide us in the right direction. To tell you all our adventures during that day would take longer than you would have patience to listen. We saw two huge bears running off, and right glad were we to see them run, too, for we had no curiosity to make their acquaintance. In order to keep off the wild beasts, we resorted to singing and shouting and making all sorts of noises—in fact we made noise enough to scare the Old Nick himself if he had been within hearing distance. All day long we toiled on our weary way, often wading through mud and water up to our knees, but we kept up a stout heart until about sunset, when we came to a broad sheet of water—what is known as a *swail*—in the backwoods. The current was running quite rapidly, and how wide it was we could not tell, as the trees were so thick we could not see even one or two hundred yards ahead. To add to our perplexity we had not seen any of the blazes for the last half hour, and the fear that we might be lost, added to the horror of the situation.

"Well, what shall we do?" asked Stirling, as he threw himself down on the ground beside the water that seemed to put a full stop to our further progress in that direction.

"We've got to go on," I replied, "and find a house to stop in over night, for it would be all our life is worth to stay in these woods. The panthers would be picking our bones before morning if we did, I'll warrant you."

"Well, go ahead; I'll follow," he answered, getting up. Selecting a good stout stick some six feet long, I plunged in, at what appeared to be an opening in the wood that might answer for a road. For a hundred yards the water was not over a foot deep, and great was our joy then to see a scar or blaze, on a huge oak, which told us we were still on the right trail. Then the water began to get deeper and deeper, until finally it took us up to our waists.

"Hold on," cried Stirling, "let's back out; we'll never get over this in the world."

"Not yet," I answered; "the current is the swiftest here, which proves that it is the channel or deepest part of the slough, so let's try it a little further," and, stretching out my staff, I proceeded cautiously. I proved correct, for it was the deepest part of the swail, and soon the water become more shallow, and a couple of hundred yards further brought us to dry land. The land seemed to be quite an elevated ridge, for the bank was steep before us, up which we were toiling with slow and weary steps, when the loud barking of a dog ahead, caused us both to fairly shout for joy. Pressing on with renewed energy, we soon came to a good-sized cabin, situated in the middle of a clearing, and as we entered the porch, we were surrounded by half a dozen children—both boys and girls—of from eighteen down to three or four summers. Their parents, they said, had gone down on the ridge five miles to a neighbor, who was sick, and would be gone all night, but if we were satisfied with milk, bear meat, and a bed of bear skins on the floor, we might stay.

Of course we did not let the bill-of-fare keep us from accepting their proffered hospitality. By the time we had dried ourselves by the fire, our supper was ready, and as we had fasted since morning, we ate our bear meat and bread, and drank our sweet milk with a good relish, and soon after we stretched our weary limbs on the bear skins, and never did I enjoy a more delightful night's rest.

Early next morning we ate our breakfast and prepared for our departure. None of the children had ever been to Helena, but they had heard "father" say "that it was a very bad road, and from twenty-five to thirty miles distant." On asking what our bill was, we were rejoiced to be told, "Nothing at all." So, after being warned about lakes, large pools of standing water, and bears, we started out. After leaving the ridge, we entered the real swamp. High canes, briars, and brushwood lined the road on either side, while the mud and water were, if anything, more than on the previous day. About midday we reached a large creek, when we came to a dead halt, for we could see no way to cross it. Turning to the left, we followed it down stream, and after two miles or more, we were overjoyed to see, at a sudden bend, where the creek was narrow, a huge tree that had been uprooted, and which formed a most excellent foot-bridge. Crossing over, we proceeded off in a diagonal direction, expecting to strike our road, but had not gone far before we came to another creek. This we followed up, and on reaching our road, we forded it, the water not being over two feet deep.

The road now became simply impassable, so we got its direction, as the day fortunately was clear, and took the woods, picking out the dryest way we could. About three o'clock we suddenly came on a fence, and a cleared field beyond, but no house was in sight. Following the fence, we found a wagon road, over which some teams had passed lately, so, highly elated, we kept on, with the expectations of soon reaching a habitation. We left the field, and then the woods stretched out again; but we had not proceeded far before we saw a large body of water before us, that we naturally concluded was the Mississippi River. Pressing forward with great eagerness, we soon reached it, but as it was clear and no current visible, we decided it was a lake. Following it up for two miles, we reached another clearing just at sundown, and, what was still better, a good-sized house besides. Congratulating ourselves on our good luck, we hastened toward it, reached the door, and knocked. No answer followed, when we knocked again, and as everything was still silent, I raised the latch and went in. Nobody was at home, but the furniture told us that somebody lived there, and the general topsy-turvey condition of everything, together with an unmade bed in one corner of the room, told us furthermore that it must be some bachelor's quarters. Spying a cupboard, my

curiosity prompted me to look in it, where I found a lot of corn bread and some fat bacon, which satisfied me that whoever lived there had taken dinner at home that day, and consequently could not be far off. Taking a couple of chairs, we sat down on the piazza and made ourselves as comfortable as possible. We had not long to wait, for just at dark a gentleman came up, who manifested a good deal of surprise to see two strangers in possession, but five minutes talk convinced him that our intentions were peaceable, and he welcomed us with true backwoods hospitality. We soon learned that he was an overseer living on the plantation, while the owner lived off in Alabama, or somewhere else, and the negro quarters were half a mile beyond. We had a good supper and a jolly time that night. The overseer proved a capital fellow, and invited us to stay a week or two with him and take a hunt, which we finally agreed to do. For a week we remained there, and although neither Stirling nor myself killed much, yet we had plenty of fresh meat and fish—in a word, we had a "high old time," and got well rested after our long tramp. At the end of a week, as our host had to go to Helena to get supplies for the plantation, we accompanied him, and consequently got put across the river for nothing, which, when you take the condition of our finances into consideration, was a fine stroke of diplomacy.

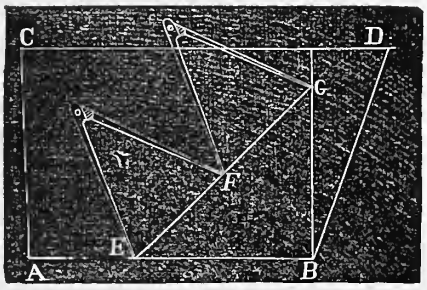
(*To be continued.*)

MECHANICAL GEOMETRY.

BY P. B. J.

In order to cut the end of a plank or board square, by means of a straight edge and a pair of compasses only, without drawing any lines or circles:

Let A B C D be the plank, the end of which, B D, is required to be squared. Having made the edge A B straight, open the compasses at any random distance, and placing one leg at A B, and the other at any point, as at F, in the direction B F, keep one leg at F, and turn the other round until it touches the edge A B at E; keep it there firm, and apply the straight edge to E F, as the figure shows, keeping one leg still at F; turn the other over into the position F G—G being close to the straight edge—and make a mark at G. Now if the straight edge is applied to G and B, and G B is drawn, it will be square to the edge A B. This problem will be found not only very useful when a square is not at hand, but may be applied to advantage in drafting bodies and full-size drafts on wall boards of the factory. It is perhaps here necessary to observe that the opening of the compasses ought not to exceed the half of the width that is to be squared, otherwise the point G will be found beyond the board; but let the direction of B F be as near a mitre-bevel, or forty-five degrees, as possible, and the solution will then of course be accurate.



A GOOD HACK.

The young man from the country, who, for the first time, penetrates from the whirl of Piccadilly to the shady silence of May-fair, will notice at the corner of a street a signboard in a more elaborate style of art than is common on modern public-houses—a sprightly youth, in the costume of the "pampered menial" of the time of George the Second, with a pole in his hand, stepping away at the rate of some six miles an hour.

The sign represents an ornamental luxury that died with the last famous or infamous Duke of Queensberry—the running footman—a class of servant without some half-dozen of which, early in the eighteenth century, no great house was complete. They ran before and alongside the fat Flemish mares of the period, and warned the innkeeper of the coming guests, or with their long staves helped the caravan-like coach out of the numerous sloughs on the northern or western high road.

Good roads and post-horses increased the coaching-pace from six miles to ten miles, and killed the trade of running footmen: leaving nothing but the costume and the long staff turned into a cane for the gorgeous creatures who still hang behind court chariots or lord mayor's coaches, and do ornamental duty in the vestibules of great houses.

With the decline of the running footman, and from the same cause—the improvement of highways and public carriages—began the decay of the famous British hackney, or roadster.

We may be sure that the roads were very bad, and that traveling on wheels was very expensive, when Alexander Pope rode to Oxford through Windsor Forest, on a horse borrowed from the Earl of Burlington, and met on his way the bookseller, Bernhard Lintot, also riding a nag borrowed of his publisher, "which he had of Mr. Oldnixon for a debt."

These roadside hacks had qualities not found in these days of Macadam and railroads, because not wanted. They were, for the most part, between fourteen and fifteen hands high. A tall horse is neither handy to mount, nor likely to last through a long day. They were strong, for they had to carry, over and above the horseman, with his large cloak and jack-boots, a heavy saddle with holsters, pistols, and saddle-bags. They were tolerably swift, for the rider might have to owe his safety to his pace. They had good shoulders and plenty before the pummel, capital legs and feet; they were hardy enough in constitution to bear rough weather, indifferent stables, and coarse fodder. They were required to carry their riders, not for an hour or two now and then, for exercise or fashion's sake, but for long days, day after day, and that with an easy, elastic walk, trot, or canter. According to a rule as old as time, the demand created the supply, and men of fortune were always willing to buy at long prices a handsome, sure-footed, easy-going, enduring hackney, while less fortunate travelers put up with every degree of utility with more or less of comfort and beauty, because they had no other way of journeying.

After half a century of stage-coaches had tempted most travelers on to wheels, came railroads, and destroyed the roadside inns, where the horseman used to find a warm welcome after a long, hard day. On the great north road, where twenty years ago the crack of the postilion's whip and the blast of the guard's horn, the rattling of hoofs and the jingling of pole-chains, resounded night and day, you

cannot now make sure of a bed, a decent meal, or a feed of corn. As for ostlers, the race is extinct; if you choose to ride or drive, you must bring your groom, or groom your horse yourself.

This decay of inns renders impossible feats performed by men of our own time, though of the last generation. Old Dick Tattersall used to have a relay of hacks on the road between London and Grantham; used to mount, after a day's work of auction at the extinct Corner, ride down one hundred and eight miles before morning, hunt the next day with the Belvoir hounds, and return by the same means to his duties. Sir Tatton Sykes, of Sledmere, the last of the real squires, who was satisfied to spend a large income at home on hospitality, field sports, agriculture, and breeding Leinster sheep, and horses to win the Derby, without troubling either the world of politics or the world of fashion, had a way of traveling (with as little baggage as Sir Charles Napier) to Epsom to see the Derby run, or to an equal distance to ride a race, that would now be impossible. Wherever he slept the first night, he borrowed next morning a clean shirt from the landlord, and left his own to be washed ready for his return. He repeated the operation at each resting-place on the road, returning by instalments each borrowed garment until he arrived back at Sledmere in his own shirt. A small valise carried the satin breeches and silk stockings that replaced his leathers and long boots in the evening. The operation was ingenious, primitive, and clean; but in 1866 the landlords with frilled shirts have followed the way of satin breeches, and are known no more.

Enduring hacks of the old sort are now only to be found in the hands of active farmers, who look over hundreds of acres before breakfast, and in the hands of country surgeons. They are generally satisfied with anything useful that will do their day's work—very different from the time when a good roadster hackney was worth as much as, and was more carefully chosen than the modern brougham horse.

In Australia you may find horses of English breed that will travel their three hundred miles in five days, and therein lies their principal merit; for well-broken, easy-going roadsters are rare in that rapid, make-haste-to-be-rich country. The Australian horse is an instrument of business, not an instrument of pleasure.

Very different was England some thirty years ago, when the tour on horseback was to be enjoyed in perfection by the horseman whose years, health, and spirits, could defy the damp days, muddy roads, dark nights, and uncertain inns, for the sake of independence, adventure, and the abstract pleasure there is in riding a good horse. "The gentleman was known by his horse." He was not tied by a mile or two, or an hour or two, and, well mounted, was not afraid of getting a little wrong in trying a short cut, or investigating a promising scene, a green range of hills, or ancient manor, buried in a park of ancestral oaks. Country folk were wonderfully kind and cheery to such a traveler; stout farmers returning from market were hospitably pressing (in the northern counties); and squires, once assured the stranger was only traveling for pleasure—not unfrequently the adventure of Squire Western on his road to London was repeated, a chance run with hounds and a dinner with a stranger to follow—were wonderfully kind. All through the counties where, at war prices, moorland had been enclosed, there were long slips of greensward on either side of the highway, inviting a canter in the morning, and affording pleasant walking ground for the last tired mile or two. Then there were many delightful short cuts through bridle-roads, across fords too deep for wheels, and—by sufferance of lodge-keepers, open to the blandishments of a smile, a pleasant word, and a shilling—through parks rich in turf, water, woodland, game, and deer. Oh, those were delightful days, when, young and full of life and hope and romance, with a good horse, a sufficiently well-filled purse, and more than one friend on the round, we set out, not afraid of rheumatism, to travel some two or three hundred miles with a definite point to reach, but no particular day or hour or route! In those days—it was before these grisly whiskers of ours had made their appearance, in spite of industrious shaving—the roadside inns, now desolate, or turned into granaries, boarding-schools, lunatic asylums, had been brought to perfection (for bachelors) by constant traffic. If you were not able to hit a great hotel, there were small publics patronized by graziers, with "accommodation for man and beast" sufficient. There were adventures, too—not highwaymen, they had gone out with the preceding generation—pleasant acquaintances were made, and unsuspected charms in the way of sport and scenery were discovered. But there were also, it must be admitted, drawbacks which few men over thirty would willingly encounter without some real object. Long rides at a footpace on dark, dirty nights, on a tired lame horse; inns full of drovers and butchers attending a fair; no stable-room; your saddle, or perhaps your horse, borrowed in the morning; and an attack of ague, fever, or rheumatism, as the reward of your enterprise and preference for a horse-ride to seats in the Tally-ho or Tantivy.

Boswell, writing just a hundred years ago to his friend Temple, of a journey to and from Glasgow, says: "I shall chaise it all the way—thanks to the man who first invented the comfortable method of journeying! Had it not been for that, I dare say both you and I would have circumscribed our travels within a very few miles. For my own part, I think to dress myself in a great-coat and boots, and get astride a horse's back, and be jolted through mire, perhaps through wind and rain, is a punishment too severe for all the offences I can charge myself with."

For these reasons it would be a waste of space to say more about the gentleman's roadster, an animal as extinct as a four-horse coachman. The cover hack is the nearest representative of the roadster hack of our grandfathers; but the spread of macadamising principles, the consequent inclination to use wheels, and the extension of railroads, have had their effect on the numbers of that once indispensable part of a hunting-stud. At one of the crack meets in the Pasture counties at the present day, you do not see one-tenth of the number of genuine cover hacks that came rattling from all points of the compass thirty years ago, when Sir Charles Knightley and Sir Tatton Sykes were the first-flight men of their respective counties. Deduct those who come in one of the many varieties of cart, phaeton, wagonette, drag, and brougham—those who make a hunter do hack's work at all near meets—those who use a nondescript general-utility animal, as familiar with a collar as a saddle—those who make their London luxury, the Park hack, do duty in the country (as one of the oldest and most famous masters of the Quorn often did), and the residuum of real cover hacks will be found very small.

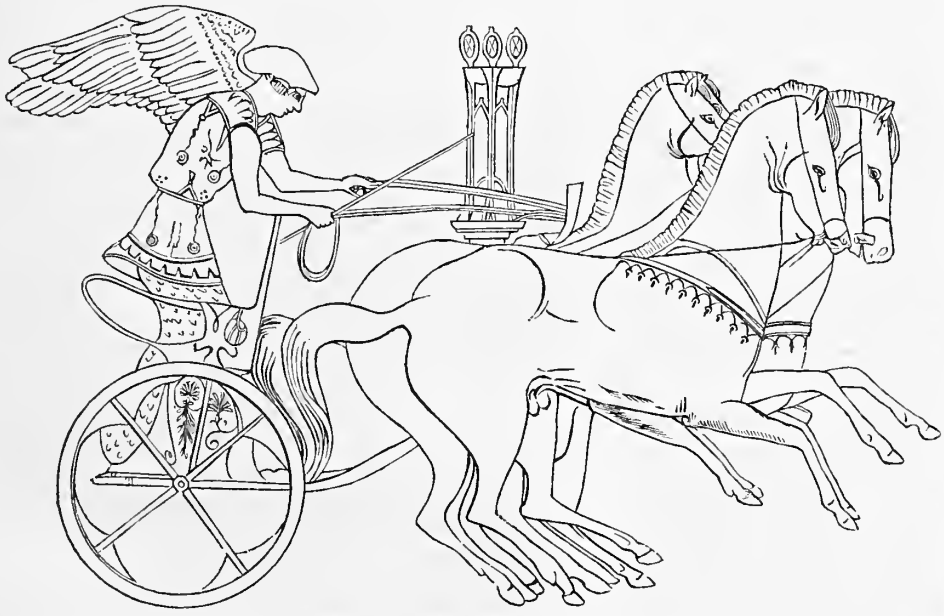
(*To be continued.*)

OUR GRECIAN CARRIAGE MUSEUM.—IV.

On ancient Grecian vases* we have various forms of the chariot, of which one with four horses, shown in the accompanying illustration, is a fair specimen.

GRECIAN CHARIOT FROM A GRECIAN VASE.

Although these are probably more the creation of the workman in clay than the work of the chariot builder ,still they must, in a lesser or greater degree, represent the prevailing modes of vehicular art in those times.†



EOS (THE MORNING STAR).

The second design is supposed to represent the goddess of the morning, Eos, about commencing her journey for the day, and is copied from a Grecian vase of great merit.

The Grecian war-chariot bodies, with the exception of the upper ring, in all particulars, resembled the bigas and quadrigas which were used for racing at triumphal processions, and in the most ancient times for pleasure driving, particularly in ancient Greece. The frame of these bodies was very strong in the wooden parts, as the body did not yet hang in straps, but was fastened on the axle, and thus often subject to heavy jolts, more particularly when two persons were inside. This wooden frame was then covered with either leather, basket-work, or thin wooden panels, and painted. All joints were made very exact, and secured with glue made of the cuttings of hide, besides which they used isinglass. Celsus calls it *ichtyocolla*.

It is worthy of note that all these bodies, with access from behind, were put on two wheels, as bigas or quadrigas, which means teams of two or four horses abreast; but they never were put on four wheels. The sides of these "diphrons" were higher than those of the racing biga, so that they formed a shield and protection around the warrior, but they could not go higher than the elbows without impeding his movements. The *antugas*, or metallic bows which circumlined the upper part of this species of Grecian wagons, instead of the wooden ring, gave to these vehicles a light and tasty appearance, by making the sides look open and lower, affording a better view of the fine proportions and beautiful dresses of the Grecian ladies.

The wooden axle was fastened by iron bands, held by screw-nails. These nails had an eyelet, through which a pin was put, instead of a nut-screw; here the axle was turning, and not stationary, as we have it in our days.

On the more common class of work, pointed iron nails were used, and their points, afterward clinched, were called *obliquatis clavis comittere*. On the country wagons, wooden pins were used, the same as in our day. The poles of the two-wheeled wagons were stationary.

* See Gerhard's Griechische Vasenbilder, 3 vols., Berlin, 1840; Etrusco Museo Chinsium, vol. 2. Windus on the Portland Vase, &c.

† Doubtless the designers of antiquity obtained many of their ideas from the pages of Homer. This most eminent of Grecian poets, according to the Arundelian marbles, flourished in the tenth century, B. C., the cotemporary of Daniel and Solomon, about two hundred years subsequent to the destruction of ancient Troy. Flaxman tells us that Homer supplied subjects for the painter and sculptor, who imbibed electric sparks from his poetic fire. Some modern authors have even doubted the existence of Homer, and gone so far in their persistent skepticism as to think there never was such an event as the Trojan war; and that if there really was, it must have been on a small scale, or it would have found a record in sacred history, although, according to profane history, more than 100,000 Greeks were engaged in the siege of Troy.

Genius and Labor.—It is no man's business whether he has genius or not; work he must, whatever he is, but quietly and steadily; and the natural and unforced results of such work will be always the thing that God meant him to do, and will be his best. If he be a great man, they will be great things; if a small man, small things; but always, if peacefully done, good and right; always, if restlessly and ambitiously done, false, hollow and despicable.

Pen Illustrations of the Drafts.

CRANE-NECK HEARSE.

Illustrated on Plate XXXIII.

IT has been said, frequently, that "a hearse is the carriage for all, rich and poor." Whether all will be carried to their "long home" in a *splendid* hearse, is questionable; but, that hearses of some kind will be in demand for years to come, is as certain as that man must die. Under this impression, we are induced to present our readers with an original design from our own artist, which has some new features of peculiar interest. One of these is in the shape of the glass, which differs in pattern from any we have before seen. The side glass will not allow of much swell to the side of the body.

Much of the beauty of a hearse consists in the fineness of the cloth used for trimming. In this instance we have dispensed with the gimp sometimes used in the folds, and in its place substituted a pendant ornament at the points for tying up, as we think, with some success. The corner-pieces near the ends of the glass should be done in paint of some dark hue, but a shade or two lighter than the panel. The cloths inside, as well as the hammer-cloth, should all be of the blackest color. The inside rails for steadying the coffin, the door-handle and lamps, may be plated with silver as usual, but we think prince's-metal for a change, would look better. The substitution of a crane neck for the foot-board makes the hearse look much lighter than it otherwise would. Wheels, 3 feet 4 inches, and 4 feet 1 inch high; hubs, 4 by 7 inches; spokes, $1\frac{1}{8}$ inches; rims, $1\frac{1}{8}$ inches; steel tires, $\frac{1}{4}$ by 1 inch. Builder's charge for the hearse, nicely finished, $1,400. Those in want of trimmings will find it to their advantage to write to Messrs. Shannon, Miller & Crane, 46 Maiden Lane, N. Y., whose advertisement will be found in our advertising pages.

EXTENSION-TOP CABRIOLET.

Illustrated on Plate XXXIV.

THIS month we furnish our readers with another design for another very light extension-top carriage, the body being hung off on two elliptic springs in front and platform springs behind. The "cut-under" in this instance answers two important purposes; the one is, it makes the vehicle look light, and the other is it allows of short turning, without difficulty. Width of the body at the front of back seat (in the clear), 48 inches; axles, $1\frac{1}{8}$ inches; wheels, 3 feet 2 inches and 4 feet high; hubs, $3\frac{3}{4}$ by $6\frac{1}{2}$ inches; spokes, $1\frac{1}{16}$ inches; rims, $1\frac{1}{8}$ inches; tires (steel), $\frac{1}{4}$ by 1 inch.

Painting.—Carriage-part, carmine; body, black; stripe, $\frac{3}{8}$ inch black on carriage relieved by two fine lines in dark blue.

Trimming.—Blue-black broadcloth.

Workman's price for building the body, $45; manufacturer's charge for well finished carriage, $850.

CHARGES FOR REPAIRS.—*Woodwork:* New hub, $8; spoke, $1; rimming wheels all round, $20; drafting wheels, $1; back-spring bar, carved, with center figure, $15; bolster, $8; furchels, each, $3; pole, $9; yoke, $7.50; fifth-wheel bed, $2.50. *Iron-work:* New tires and bolts, $35; tire-bolts, each, 25 cents; resetting tires, $8; new wheels (painted), complete, $85; resetting axles, $10; carriage bolts, each, 30 cents; new washers, and oiling axles, $2. *Trimming:* New cloth headlining and covering top with enameled leather, $165; headlining separately, $80; leather top, $85; recovering dash, $12; rubber apron, $10; whip socket and fixtures, $3. *Painting:* Burning off old paint and repainting body and carriage-part, $90; retouching up body, carriage-part and varnishing all, $40. *Plating:* Capping axle-nuts, $6; capping prop-nuts, $3.50; new set hub bands, $4.

ROUND CORNERED BOX-BUGGY.

Illustrated on Plate XXXV.

WE presume that this kind of buggy will never get out of fashion, but always be in demand, with a few slight alterations. Under ordinary circumstances, when manufacturing work for sale, this will be the safest buggy to keep on hand, for after following in the wake of fashion, manufacturers have in some cases been left "high and dry," with stock for which there is little demand.

Width of body on seat 36 inches; wheels, 3 feet 8 inches, and 4 feet 1 inch high; hubs, $3\frac{1}{2}$ by $6\frac{1}{2}$ inches; spokes, 1 inch; rims, $1\frac{1}{8}$ inches; steel tires, $\frac{3}{16}$ by 1 inch.

Painting.—Patent English black body and carriage; striping, $\frac{3}{8}$ broad line, red; and two parallel fine lines, blue.

Trimming.—Blue broadcloth, edged with patent leather.

Workman's charge for building body, $16; carriage-part, $8; wheels, $10; shafts, $3.50; spring bars, $6. Price of buggy, nicely finished, $450.

CHARGES FOR REPAIRS.—*Wood-work:* New set of wheels, $18; hub, $5; spoke, 75 cents; new rims, $16; shaft-bar, $2; new shaft, $4; spring-bar, $2; axle-bed, $4; perch, $5; headblock, $3; drafting wheels, $1. *Iron-work:* Resetting tires, $8; new tires and bolts, $20; tire bolts, each, 25 cents; carriage-bolts, each, 30 cents; fifth-wheel, $5; resetting axles, $6. *Painting:* Repainting, $75; touching up and varnishing, $35. *Trimming:* Covering dash, $12; body linings, $40; new top, including head-lining, $125; leathering shafts, $7; whip socket and fastenings, $3; cleaning top and oiling, $2.50.

COAL-BOX BUGGY.

Illustrated on Plate XXXVI.

We consider this a very pretty buggy of its kind, and trust that our efforts to please will be appreciated in this instance. The sham pillar should project somewhat beyond the panel, but the lines near the bottom of the body may be done in paint. The builder will notice that the tinted lines under the seat, indicate that the part shown is to be finished rounding. Wheels, 3 feet 10 inches, and 4 feet high. The general details in this case are similar to those given for the buggy on Plate XXXV. Price for making the body, $18; manufacturer's charge for the nicely finished buggy, $465.

Notice.—Next month we shall publish five entirely new and original designs, among which will be two for pony phaetons, suitable for summer use. Those who may not be regular subscribers, may obtain this number separately, through any newsdealer for 50 cents.

Paint Room.

NEW CHROME YELLOWS.

The compounds of chromium with lead have been successively treated in former numbers (pages 11, 52, 80, 139, and 334), in which are described all the varieties, from yellow orange to red. There are, however, some other compounds of chromium with zinc and baryta which give peculiar shades of color, and, thus far, seem to be but little known. They will undoubtedly come into use as soon as they are known and appreciated.

Chrome Baryta, or Barium Yellow.—This is a very beautiful pale sulphur yellow paint. It is made from a solution of chloride of barium, which is first made slightly alkaline with caustic soda, till it is at the point of giving a precipitate. Then a solution of neutral yellow chromate of potash is added as long as a precipitate is formed. This precipitate is then carefully washed and dried. It has the advantage over lead yellows that it is not acted upon by sulphurous vapors, which will blacken lead compounds.

Zinc Yellow, or Chrome Zinc, is another very important color. It possesses a peculiar pale tone, not found in the chrome compounds of lead, and has recently been introduced as a paint. It is best made from a solution of sulphate of zinc, which may be obtained very pure, and is very cheap, being a waste product of all ordinary galvanic batteries in telegraph offices, electroplating establishments, etc. The zinc yellow is a basic compound of oxide of zinc and chromic acid: the neutral and the acid compound is soluble in water, and thus can give no precipitate. For this reason a solution of red bichromate of potash gives no precipitate in a solution of sulphate of zinc; while by the combination of constituents only a soluble bichromate of zinc can be formed. Neutral chromate of potash, or bichromate mixed with sufficient caustic soda, gives a beautiful yellow precipitate; but at the same time a red solution is formed, containing the soluble bichromate of zinc; and by further addition of chromate of potash no further precipitate is formed, as the zinc is retained in the solution, so that, in this way, neither all the zinc nor all the chromate can be utilized. If, however, before the precipitation, the neutral chromate of potash is mixed with so much caustic lye that the amount of alkali is double that of the neutral salt, then a yellow precipitate will be formed with the solution of sulphate of zinc, and all the zinc may be precipitated. On these facts the following method is founded.

A quantity of sulphate of zinc is dissolved in water, and, if necessary, purified by settling and decantation. A smaller quantity of chromate or bichromate of potash is also dissolved. About ten test-tubes are now each half filled with the zinc solution, and placed in line. To the chromate solution caustic alkali is added, till a drop of it produces a precipitate in the first test-tube; and at the same time it is observed if a further addition of the mixture to this test-tube produces a red color, which would indicate the formation of red bichromate of zinc; if this be the case, a further portion of caustic solution is added to the chromate of potash, and the mixture tried in the second test-tube. If now again a red solution appears at the same time with the yellow precipitate, a new portion of caustic lye is added, and this is repeated till the yellow precipitate is formed, without a simultaneous red coloring of the supernatant liquid, which must appear either colorless or light yellow, like a solution of neutral chromate of potash. As soon as this occurs, the contents of the test-tubes are poured into the original sulphate of zinc solution, and then the mixture of chromate of potash and caustic lye is added, as long as a precipitate takes place. The precipitate is afterward washed and dried, and forms a pale yellow, in color between Naples yellow and the palest yellow chrome lead.—*Manuf. and Builder.*

WHO FIRST MADE VARNISH IN AMERICA?

In one of our earlier volumes we gave the names of the first varnish manufacturers in New York City, in 1828. We had never supposed these to have been the first to make the article in this country, by any means, for, to our certain knowledge, it was done much earlier in Connecticut. One Daniel Platt, of Saugatuck (now Westport), with whom we learned the "art and mystery of coach-making," over forty years ago, in his earlier days was accustomed to itinerate over the country, and make up a *lot* of varnish for any carriage maker willing to pay for his services. As far back as 1810, he was employed in this work, and capital varnish, too, he produced. In later years much of his varnish found its way to New York, and we have the best of reasons, personal knowledge, for believing that his varnish was never excelled. We not only helped make the article in 1825–6, but applied it to carriages with success, and what is more, we never remember to have seen it pit, as we often find it does now. As every thing relating to varnish must be of interest to carriage makers, we add the following, from *The Hub*, for January:

"In 1820, Franklin Houghton, in company with David McClure, made varnish in Cambridge, Mass. The shop was the back part of the blacksmith's shop of Dexter Pratt, situated on the leading road to Mount Auburn. This was in the vicinity of where Longfellow now lives, and it was upon this very shop that he wrote his well-known poem, the 'Village Blacksmith.' This shop re-

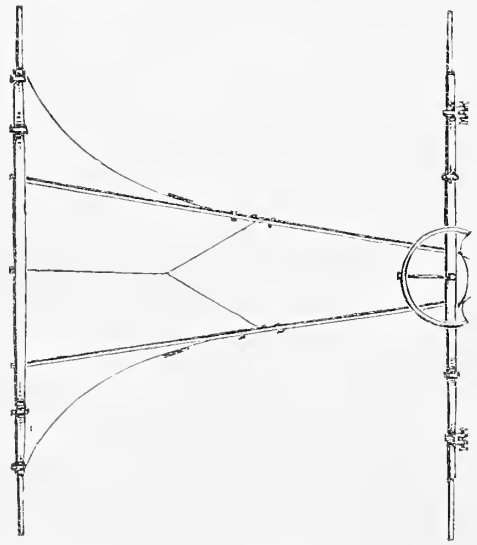
mained until three or four years since, when it was burned [down]. In the back part of this very building, Messrs. Houghton and McClure made a regular business of making varnish. A kettle holding about eight gallons was used, and, as fast as made, the varnish was taken to Boston and sold to the carriage makers. They did well at this business, finding a demand for all they could supply. It is said they realized a dollar an hour apiece for working hours, and this was considered splendid pay in those times. The business increased to such a degree that they removed to a shop which they built in the vicinity of Boston, where the business continued to prosper. Houghton retired on account of feebleness of health, caused by the varnish fumes, and McClure afterwards gave up the business in 1827, from the same cause, realizing a handsome property therefrom.

"Pike and Samuel Shed had made varnish for the Boston carriage makers many years previous to the starting of Houghton & McClure in this business, but the former had merely gone from shop to shop, when occasion required, and assisted in making the varnish in each, the materials being supplied them; whereas, Houghton & McClure manufactured and sold upon their own responsibility."

Sparks from the Anvil.

STAYS FOR A DOUBLE PERCH.

THIS month we fulfill our promise, and give our readers the design for stays to a double perch, furnished by a correspondent.



The middle stay, the only one we need notice, is so constructed that it gives the greatest possible strength compatible with lightness. This is effected by following straight lines in a rod between the two perches to near the center, and then branching off in two directions to meet the perches where the ends are attached, as shown in the diagram. The back end takes a nut behind the back axle-tree, thus making it absolutely secure.

CUTTING SCREWS AND BOLTS.

MR. EDITOR: Perhaps many of our blacksmiths have noticed bolts being largest at the ends, when cut by stocks and dies. It is our purpose to show how they may be cut true. It may be effected in the following manner: to prove the correctness of which, take a piece of round bar, and let it be two or three inches longer than you intend to cut the screw. Lay this in a good charcoal fire, and suffer it to get cold of its own accord, and then clean off the scales by draw-filing. After screwing it firmly in the vise, open the stocks and put them on the bar of iron, about an inch from the end, then screw them sufficiently tight to mark out the threads on the iron, and turn them down within an inch of the other end. After this, tighten the stocks, and bring them up again, and so on until a full thread is raised. I find from a number of experiments, that wrought iron more strongly contracts heat or cold endways than sideways. This may be proved in the following manner: let a hole be punched through the center of a square plate of iron, after which touch the edges with a piece of tallow or soft wax, then put a hot bar of iron through the hole, and that edge on which the tallow or wax first melts will be the endways, or grain of the iron. The elastic nature of the iron, and the stocks giving way, are the causes of irregularity in the screw.

CINDER HEAD.

Trimming Room.

OUR TRIMMER'S INTRODUCTORY.

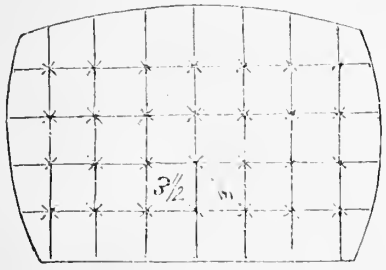
MR. E. M. STRATTON: *Sir.*—In accepting the position of regular contributor to this department of your valuable magazine, it will be my aim to make it instructive to the craft—to those in particular who are located far from the city—knowing, as I do, that there are really many good mechanics who only lack the opportunity of seeing good work done, to do it themselves. The first thing of importance in a carriage, is to have it please the eye of the purchaser. A job may be finely finished in some respects, but a twisted bow, a scooping top, or a bad wrinkle in the quarter, will condemn the whole thing.

The next thing to be considered is comfort. This is what most people buy carriages for, and, unless they get it, they will never be satisfied, but it will be a source of annoyance to the boss until the carriage is disposed of in some way. I remember a circumstance that happened several years ago. One of the particular customers of the boss ordered a wagon, which, when finished, we thought a beautiful job. This was in the day of leather rolls and herring-bone backs, which were as hard as a rock and smooth as a panel. Well, the gentleman came for his wagon, the appearance of which pleased him very much. His lady also was delighted, so they decided they must take a drive, and started for the High Bridge; but, before they returned she declared it to be the ugliest thing she ever saw. It had broken her back, *and she would never ride in it again.* The gentleman afterward brought the wagon back to the shop, saying it was of no use to him unless it could be made easy for his wife; so we recommended a squab-back for the seat, which afterward proved satisfactory.

E. B. SAMPLE.

MAKING WAGON BACKS.

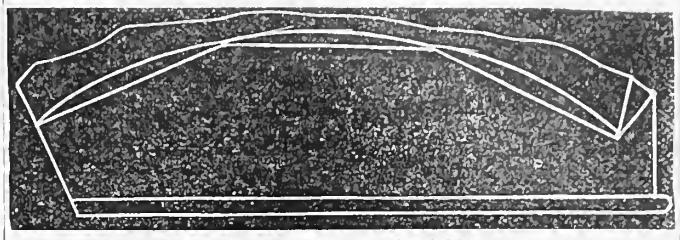
In taking a job to trim, the first thing to do is to get out your patterns. (and let me here say that no man can cut out stock close, without patterns for every thing), then paste out all your stock that it may dry gradually, for forced drying will make it draw badly. For the back to a wagon, you need three thicknesses of buckram. When thoroughly dry, square the size as near as you can; tack to your back rail, letting it down to your cushion facing; mark your corners and give an easy sweep up to the back rail. Of course, you must mark the top by your rail. Now there is a difference in taste in regard to small rolls, or squares, for the back. If you use rolls two inches is wide enough. If squares, about three and a half inches. For rolls, give one inch fullness sideways—but allow nothing for length—and one row of tufts at the bottom and top will be sufficient. Be sure and leave cloth enough at the top for building out a thick top. For squares give about one inch each way, marking off your buckram on the back side, then baste a strip of muslin on the inside about six inches from the bottom, put on a good layer of moss to bring your back out thick at the top, then draw your muslin over easy and baste it at the top. Next press your cloth with a hot iron, as it is marked off. The cloth should either be lined with muslin or a layer of cotton batting. The last is best, if well done. The French use Canton flannel as it gives a nice soft feeling to cloth or silk goods. Pricking your hair up fine, lay on a good thickness and afterward put on your cloth and tuft down, using your stick to work it into shape, being careful not to roll your cloth up in lumps; then baste the sides and bottom down; line the back with leather or enameled cloth, and let it come up under the back rail, so that the tacks will hold it. Finish by blind sewing the binding, and paste on the back side.



SETTING AND MAKING CARRIAGE TOPS.

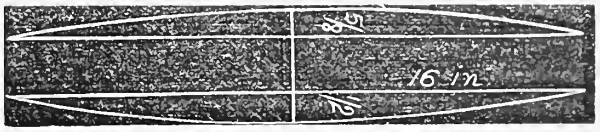
The top of a wagon is an important portion of the vehicle, and will seldom be quite exact, unless you commence in the smith shop, where the level of the seat should be found with a spirit-level, and marked on the seat, so as not to be filled with paint. Although I think it the jobber or finisher's business to set bows, yet every trimmer ought to know how to do it. This requires judgment as to size of body, shape, &c.; for, as an old boss used to say, "What is the use of rules, if you hav'nt got eyes?" The front bow should drop one-half inch lower than the back one, and the second bow one-quarter of an inch lower than the third. Now mark off the space for the roof on the side a little below the commencement of the bend in the bows, and tack the webbing outside the marks. After cutting a pattern for your quarter, mark the size of the roof, back curtain, and stays, on your straight-edge, and cut your leather, and paste it out.

When fitting your quarter, let a boy take hold of each



SIDE QUARTER FOR TOP.

end about where the bend of the bows starts, and then, bringing one hand to the center of the inside, rub it backward and forward a few times. This brings the leather over the corners easy. Next tack the leather on your bows, letting it come over the webbing three-fourths of an inch. Afterward, tack your roof on top, and find the inside of the webbing with your finger; then prick through the roof and quarter with a round awl in the center of the two middle bows, and the outside edge of the back and front bows, allowing one-fourth of an inch for seaming; then take the quarters to your bench, and mark off



SIDE SWEEPS FOR TOP.

with a sweep, as seen in the sketches. After cutting your welt, baste the three together at each awl prick, and stick a fine awl in the holes. At the edge of your bench, stretch enough welt to take the fullness out, and, whipping it over and over, then seam up. This should be done by hand. Then stuff your top, take a full width of muslin, tack it three or four inches above the webbing down to the props, paste between the bows, pick up some fine hair, and loosely lay it in about two inches in thickness, turn your muslin up over the hair, and, tacking down on all the bows, then draw on your top.

Editor's Work-bench.

PICTURES OF THEN AND NOW.

The older craftsmen among us, who enlisted in the ranks to learn "the art, mystery and occupation" of carriage making forty or fifty years ago, well remember the hardships and trials of those times. Then the manufacturer had to make his own springs, axles, bolts, top-props, wheels, &c.; nothing came to hand ready prepared, as in modern times. The single article of wheels cost a vast amount of hard labor. The workman sometimes was forced to turn his hubs in a foot lathe, and invariably to dress out his spokes and saw out his felloes by hand, and should he succeed in producing a complete set in four days—for which he was paid five dollars,—he thought he was getting along remarkably well. Every thing in the body or carriage-part line then, had to be cut out with a whip-saw, and afterward dressed up at a great expenditure of muscle, so that scarcely a day passed without exhausting the strength of the laborer, and entailing upon

him weariment which a night's rest failed to entirely remove. Such was the hard lot of the carriage makers in early times, that it gives us pain in thinking over the matter while engaged in penning this article, strange as it may seem.

When we hear the modern mechanic grumbling over his hard lot, we feel like saying to him, you do not know what hard work is: you ought to have been born fifty years earlier, and gone through the trials of those days, often prolonged through sixteen hours of the twenty-four. But we hear some *independent* working man say "I would never have submitted to such slavery." Perhaps not, but we judge otherwise. Work then was not as plenty as now. There were more mechanics in proportion to the work required to be done than in our days, and jobs were not easily obtainable. A mechanic was frequently out of work for three months at a time, and was forced to live upon the savings of the strictest economy in previous years, or the charity of his relations.

But we have fallen upon better times. For several years there has been plenty of work at good prices, and opportunity has offered for laying by something. If the working man has not improved it, that is his fault, and his alone. It will not answer to interpose the excuse that every thing required in the family costs double now what it did formerly, for while this may be true in some cases, wages received for labor has trebled. We have said—and no man who has marked the course of events for the past half century, could speak otherwise—that the working man, for the past ten years, has had better opportunities for improving his condition, than his ancestors, providing he was economical, industrious, and saving. Those otherwise inclined, are never expected to succeed in any country or age. Of this class are the runners to the grog-shops, who, if paid twenty dollars a day, would spend it all within the year. These are always grumbling about hard times, the tyranny of capital, &c. Let us say to all such, the greatest tyrant over you is alcohol. The sooner you shake off his rule, the sooner you will become a free man—a happier man.

CULTIVATION OF THE MIND.

CULTIVATION of the intellect is one of the most noble labors in which individuals can engage, and the best of all is, that it may be done at trifling expense. There is scarcely a mechanic in this country, who cannot at least find as many as two hours in the twenty-four, in which to apply his mind to study. Books are now so comparatively cheap, that they are placed within the reach of nearly all classes; and were it otherwise, there are many public libraries from which they may be had for almost nothing. Should these facilities all fail, application should be made to private collections, the owners of which, in most cases, would be but too happy to lift deserving students up the hill of science, and in so doing feel that they are amply repaid for such favors, by seeing those around them endeavoring to elevate themselves in the scale of human existence.

But there are many who tell us that they cannot find time for study from their daily toil, and if they did they have no taste for books. Allowing this to be true in a few instances, it must be conceded that, in most cases, this excuse is but a mere subterfuge resorted to as the easiest way in which to escape, and palliate the willful neglect of known duties. It has been well said that, "where there is a will there is a way." If, instead of spending his time in the "corner grocery," and placing his money in the hands of those who are working his ruin and that of his family, by putting an enemy into his head to steal away his brains, he would devote those hours to study, we should very soon see a remarkable change among the working men of the age. If "knowledge is power, is wealth, is honor,"—and who can successfully dispute it?—it is then sound policy, as well as the best interest of the laboring man, to cultivate early and strenuously the intellectual faculties which God has implanted in his head. Nearly all those persons in this country whom the laboring man terms "capitalists," and stigmatizes as "tyrants," were once poor men, who, by their own industry and study, have raised themselves from poverty to affluence. The same privileges are open to all, and those who neglect to take the flood-tide in going on to a fortune, ought not to blame others who do. It only adds an additional link to their already rotten chain of infamy.

CHARTS.

OUR friends will have noticed our reduction in the prices of charts, Nos. 5, 6, and 7, now offered at half price—50 cents a copy—in our last issue. This offer will only remain open until May 1st, and consequently must be improved to get them cheaply. We are happy to find many have sent in their orders. Remember, friends, that you get in this way, a number of valuable designs at less than two cents each, cheaper than ever before. Send in your orders, with the money, by mail. They will be filled by return post.

For those who study economy in advertising, we get up a business chart—19 by 24 inches—containing about sixteen designs of carriages as well as the business card—one hundred copies for $25, or two hundred for $35. When printed on pasteboard, these cost $20 more per hundred—one hundred copies for $45, and two hundred copies for $55. In this case, the expense incurred by framing is avoided.

Those who prefer leaflets, can see a specimen by

sending for it by mail. One containing eleven designs and a title-page will cost $15 per hundred copies, or $20 for two hundred. Carriages selected from the Magazine are always furnished free; when engraved from special designs, from $6 to $7 each, additional. When sent express C. O. D., the costs of collection will be charged.

REVIEW OF TRADE.

January, under favorable circumstances, is not generally expected to prove encouraging to trade, but this year, especially, the month was more than ordinarily dull. The second week in the month some eighteen prominent, and several less known merchants in this city, *went under*. A. T. Stewart & Co., who have a trade less fluctuating than most other firms, discharged sixty clerks; Claflin & Co., fifty-six, and Spaulding & Co., thirty. Many other houses in this city have sent away their employees, in mercantile as well as mechanical business, so that now there are more persons out of employment than have been for the past ten years. Scarcely a day passes without an application for work from some unfortunate individual. Under such circumstances, it is not expected that trade in carriages can flourish.

We learn that in New Haven, where trade was good a year ago, many workmen have been thrown out of employment. At one factory fully two-thirds of the men are now idle, and in many of the shops not more than half the usual hands are at work. These, however, entertain the hope that they may get work again in a few weeks. The same discouraging reports reach us from other cities and country villages.

In New York the picture is more gloomy than we have seen before for many years. This acknowledgment is painfully made, but, as faithful chroniclers of the times, candor compels us to say so. Whether much improvement will be made as the season advances, is a matter which time must solve. We think the prospect discouraging.

MUTTERINGS OF JEALOUSY.

The following article comes to us from a friend, lately a member of the Coach-maker's Union. Not having seen a copy of the Philadelphia publication, the editor of which is referred to, for three months, we should never have known what he is about, but for this communication. Considering the lack of principle and general character of our opponent, we had concluded to pass him by in silent contempt. His allusion to the publication of humbugs among our advertisements, is a slander on the Messrs. Allen & Co., who not only come to us highly recommended, but their advertisement appears in nearly all the secular and religious papers of the day, such as the *N. Y. Tribune*, *Independent*, *Christian Advocate*, and others. We presume the trouble all springs from the circumstance, that never having heard of our cotemporary, the respectable advertising house of Rowell & Co., in this city, did not offer the advertisement to him.—*Hinc illæ lachrymæ.*

Your censorious cotemporary, with evident ill-temper and conceit, utters the following in his prospectus. "Our course *will be manly* (?) and respectful to all; low personalities as practiced by other publications, claiming respectability, *will be discarded*." In the same number of the publication alluded to, the editor of which prides himself upon his veracity, we find the following: "*Many persons decline taking the Journal* for the reason that they took a work of this kind, several years ago published in New York." Still further we find another serpent's hiss, which interpreted, reads as follows: "There are no humbugs advertised in our columns, which cannot be said of an older publication, which claims to have saved its friends from being robbed of large sums of money." Now all this appears to us clearly indicative of a slanderous disposition. If we, with others, may be allowed to express our candid opinion, we should say he was more fit to take the place of the criminal at the bar, than of the judge on the bench.

We may, in part, account for his conduct in this wise. We read of one Scholasticus who carried in his pocket a brick, thinking to convey to his friends a perfect idea of his house from the specimen. So with our cotemporary, as we may infer from the quotations above. They are specimen bricks of the many, many promises made heretofore, and "broken like pipe stems." Thus far his conduct is not calculated to provoke the indignation of any one, however stoical or indifferent to insult he may be, but instead, a feeling of compassion for a man that is so stupid and indiscreet as to show to his limited number of readers, that he is a poor, weak, narrow brained specimen "brick." The whole current of falsifications issued by this asinary editor seems to be a self glorification. Let us counsel our friend (?) not to strew his self-donned honors too broad-cast, lest the journeymen coach-makers from whom he took, by a deep-laid scheme, the assumed proprietorship of their publication, should call upon him to give an account of the property which he now holds against their honest protest, after assuming the proprietorship, and then *turning their guns upon themselves*. In order to allay the antipathy of the "bosses," he has since virtually presented to his few remaining subscribers the bad maxim, that "a lie well stuck to, is as good as the truth;" seemingly laboring under a mental hallucination, caused by the continued and increasing success of The New York Coach-maker's

Magazine. He has, this time, evidently jumped into his unmentionables wrong side front, thus throwing *his* brick into his left hand pocket, and himself into a ludicrous and unenviable position. Fortunately, such attacks do not harm in the slightest degree.

ITEMS.

Admiral Dahlgren has for his family coat of arms on his carriage panel two Dahlgren guns, a telescope, an anchor, and a furled flag with the motto: "*Quorum pars fui.*" . . . Wood Brothers, who now occupy a portion of the building 596 Broadway, as a carriage repository, have commenced building a new one in the same street, a short distance below Astor Place. . . . . Our friend John Stephenson, Esq., turned out a street car for the Harlem railroad as early as 1832, he then doing business in Elizabeth street, near Bleecker. . . . A fellow calling himself Henry Norton, of Newark, and a carriage-maker, got on a drunken frolic in New York, tried with another man to force his way into the San Francisco Minstrels, and was arrested and taken to the station house, on the 12th of January. . . . Files may easily be cleaned by holding them in a jet of steam, especially where such are filled with wood fibres. Putting water on a hot stove, and laying the file on it while boiling effects the same object. . . . In some localities we have reason to believe that the prices charged for repairs to different portions of the carriage, would, summed up, in the aggregate amount to more than is asked for in the new carriage. . . . Victor Emanuel is reported as being accustomed to ride out in a blue chariot, drawn by two chestnut horses. . . . Robert Bonner's horses are valued at $200,000—a fortune in itself. . . . Peter Cooper, when young, learned the coach-making business with John Woodward, of this city, and during his apprenticeship, invented a machine for turning hubs with greater facility. He is said to have been the inventor of many other useful things.

COACH VARNISHES.

Among our advertisements the reader will find that of our friend, John D. Fitzgerald, of Newark, N. J., the worthy successor of the late firm of Daniel Price & Fitzgerald, long celebrated for making the best American varnishes. Having used these varnishes in our own factory for twenty years, we can testify to their uniform good qualities from personal experience, and would recommend them to our patrons as being perfectly reliable, and never failing in giving satisfaction.

LITERARY NOTICES.

At the commencement of this year, *Every Saturday* assumed the form of "Harper's Weekly," and has since been made attractive with first-class illustrations, embracing views of famous places, incidents of travel, figure-pieces, copies of celebrated paintings, studies of street life, and a gallery of portraits of contemporary celebrities. The literary matter, as heretofore, is mostly made up of serial tales, short stories, essays, biographical and descriptive, poems, notes of travel and adventure, personal gossip, literary intelligence, facetiæ, popular papers on science, and translations from the Continental magazines. Fields, Osgood, & Co., publishers, Boston. Yearly subscriptions, $5.

Our Young Folks, likewise published by the same firm, is one of the most interesting publications for the little folks, ever issued from the press. The contents of the January number are: The Girls; In School-days (poetry); A Story of Magazine; The Historic Cats; Navigation and Discovery before Columbus; Jack's Victory; Old Thomy; Three Companions (poetry); Polly Sylvester's Dream; A Sketch of the Life of Professor Agassiz, and Our Pictures, with four full page illustrations (including a portrait of Agassiz), and several smaller engravings. Subscription, $2 a year.

Messrs. Fields & Osgood, likewise announced early in January, a new translation of Homer's Iliad, by our incomparable poet, W. C. Bryant, which will probably supersede all previous renderings of this immortal Grecian bard, a specimen of which appears in the January *Atlantic*.

EDITORIAL CHIPS AND SHAVINGS.

Treatise on the Wood-work of Carriages.—We regret that in consequence of the non-arrival of the proper drawings from Europe, we are compelled to omit the article under this head, this month.

Recklessness of French Hostlers.—Crossing the Boulevards of Paris is represented as dangerous business. Carriages, butchers' vans, and laundry carts rattle along in such profusion, and at such a pace, that knock-downs of foot passengers are of frequent occurrence. In case of a collision, or of a run-over, the vehicle never stops to ascertain damages, but goes ahead pursued by the police. Their address being obtained, the injured puts in his claim for damages, and an Accidental Assurance Company pays the bill. The company guarantees drivers immunity from the consequences of reckless driving, and furnishes a value for the sufferers from it.

Newhall's Surprise.—George F. Newhall was surprised by over eighty of the workmen of the Newhallville carriage factory, New Haven, on Friday evening, who gave him a very handsome and costly present of an easy chair, upholstered with scarlet plush velvet.

A Negro's Compliment.—A negro driver of a coach in Texas stopping to get some water for the young ladies in the carriage, being asked what he stopped for, replied: "I am watering my flowers." A more delicate compliment could not have been paid.

The Gray Mare the Better Horse.—The proverb "The gray mare is the better horse," as applied to known cases of wife government, is said to have originated in the following occurrence:

A gentleman who had seen the world, one day gave his eldest son a span of horses, a chariot, and a basket of eggs. "Do you," said he to the boy, "travel upon the high road until you come to the first house in which is a married couple. If you find that the husband is the master there, give him one of the horses. If, on the contrary, the wife is the ruler, give her an egg. Return at once if you part with a horse, but do not come back so long as you keep both horses and there is an egg remaining."

Away went the boy, full of his mission, and just beyond the borders of his father's estate, lo! a modest cottage. He alighted from his chariot and knocked at the door. The good wife opened it for him and courtesied.

"Is your husband at home?"

"No;" but she could call him from the hay field.

In he came, wiping his brows. The young man told his errand.

"Why," says the wife, bridling and rolling the corner of her apron, "I always do as John wants me to do; he is my master; aint you, John?"

"Then," said the boy, "I am to give you a horse; which will you take?"

"I think," said John, "as how that bay gelding seems to be the one as would suit me the best."

"If we have a *choice*, husband," said the wife, "I think the mare will suit us best."

"No," replied John, "the bay horse is for me; he is the more square in front, and his legs are better."

"Now," said the wife, "I don't think so; the gray mare is the better horse, and I shall never be contented unless I get that one."

"Well," said John, "if your mind is set on it, I'll give up; we'll take the gray mare."

"Thank you," said the boy, "allow me to give you an egg from this basket; it is a nice fresh one, and you can boil it hard or soft, as your wife will allow."

The rest of the story you can imagine; the young man came home with both horses, but not an egg remained in the basket.

"Fraid."—An old sea captain who had retired from service, and was living on a farm, had a harumscarum nephew with him. He could neither frighten nor drive the said nephew to do any thing in its proper time. Among the rest he could never get him to drive up the cows to milk till after dark; he had to drive them from a back pasture, undergrown with sugar brush. Finally, the captain asked the lad if he was not afraid to go through the woods in the dark.

"Fraid!—what is that? I never seen a fraid," replied the boy.

"Well, never mind, you will see one some of these nights, if you do not get the cows up before dark," said the captain meaningly.

That night the boy played until dusk before he went after the cows as usual. The captain took a sheet, and followed him. Now, the captain had a tame monkey, which saw all the performance, and, monkey like, he took a table cloth, and followed at a respectful distance. The captain went into the woods, where there was a big log by the side of the path. Going to the farther end of it, he wound the sheet round him, got upon it, and stood still, the monkey assuming a similar position upon the other end of the log; in this position the parties stood when the boy came along with the cows. They shied a little upon seeing the ghosts, which caused the boy to look ahead.

"Hallo, what is that?" he shouted, "I think it's a fraid!" And then espying the monkey he sang out, "If there ain't two fraids—a big fraid and a little fraid."

This caused the captain to look around, and he saw for the first time his ghostly companion. He thought it was a fraid, sure enough. The old captain ran towards home, the monkey chasing him, and the wicked nephew clapping his hands and shouting:

"Run, big fraid, or little fraid will catch you!"

School Examination.—"John, how do you parse grandmother?"

"I doesn't pass her at all, but always goes in to get a tart."

"What is the singular of men?"

"They is singular when they pay their debts without being axed to do it a dozen times."

"Young women are beautiful. What is it that comes after young women?"

"It's the fellows, to be sure—they are always arter the young women."

"That will do; now you are dismissed."

Military Officer.—*Can I hire a charger for the day, at this stable?*

Stableman.—*We only let out horses. The "charger" is in the office; you can ask him yourself.*

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, Jan. 24, 1870.

Apron hooks and rings, per gross, $1 *a* $1.50
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 7½ c.
Axles, plain taper, 1 in. and under, $5.00; 1⅛, $6.00; 1¼, $7.00; 1⅜, $9.00; 1½, $10.00.
Do. Swelled taper, 1 in. and under, $6.50; 1⅛, $7.00; 1¼, $8.00; 1⅜, $10.00; 1½, $13.00.
Do. Half pat., 1 in. $9; 1⅛, $10; 1¼, $12; 1⅜, $15.00; 1½, $18.00.
Do. do. Homogeneous steel, ⅝ in., $10.00; ¾, $10; ⅞, $11.00; long drafts, $2.50 extra.

☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.

Bands, plated rim, 3 in., $1.75; 3 in., $2; larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Bolts, Philadelphia, list. 35 off.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 16 *a* 20c.
Burlap, per yard, 10 *a* 12c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, $1.75 *a* $2; velvet, $2.50 *a* $4; oil-cloth, 40 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $1.50, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $15 *a* $22.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.75 *a* $2.
Enameled cloth, muslin, 5-4, 35c.; 6-4, 60c.
Enameled Drills, 45 in., 50c.; 5-4, 40c.
Do. Ducks, 50 in., 70c.; 54, 60c.; 64, 80c.

☞ No quotations for other enameled goods.

Felloe plates, wrought, per lb., all sizes, 15 to 18c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.25 *a* $2.00.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.

☞ For a buggy-top two pieces are required, and sometimes three.

Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $1.75.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach, $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 23c.; railing do. 20c.; soft dash, No. 1, 14c.; do., No. 2, 10c.; hard dash, 15c.; split do., 15c.; No. 1, top, 23c.; enameled top, No. 1, 23c., do., No. 2, 20c.; enameled trimming, 20c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 12c.; ⅜, 13c. *a* 16c.; ½, lead, door, per piece, 30c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates. (See Advertisement.)
Oils, boiled, per gal., $1.20.
Paints. White lead, extra, $13.00, pure, $14.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $6 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Sand-paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's, 40 per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Serims (for canvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 13c.; bright, 15c.; English (tempered), 18c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.

☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.

Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1¼ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.

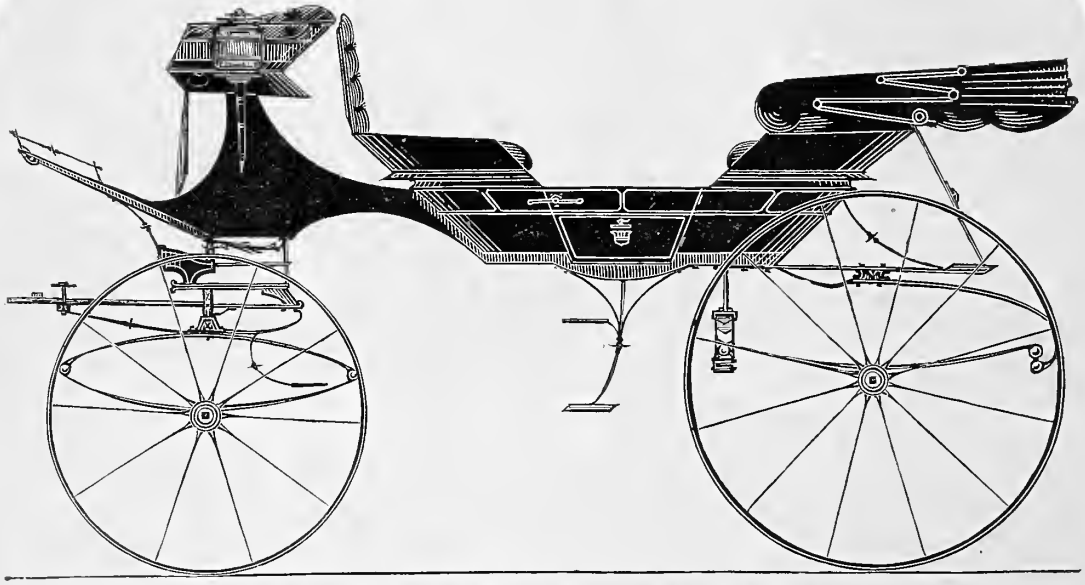
☞ For extra hickory the charges are 10c. *a* 12½c. each.

Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3-16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 12c.; 1-4 x 1, 12c.; 3-16 x 1 1-8, 13c.; 3-16 x 1, 13c.; 3-16 x 7-8, 14c.; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close-plated nuts and rivets, 75*a*80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2 Do. ball, $1
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 50c.
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.00; nonpareil, $5.25.
Do. English, $6.25 to $7.50 in gold, or equivalent in currency.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.

ANSWERS TO CORRESPONDENTS.

J. B., OF CANADA.—Your Magazine is regularly sent to you, and, if not received, the fault rests with the post-office somewhere. If you are overcharged you ought to settle the matter at home. We cannot control officials out of the United States. Your U. S. postage is prepaid here, quarterly.

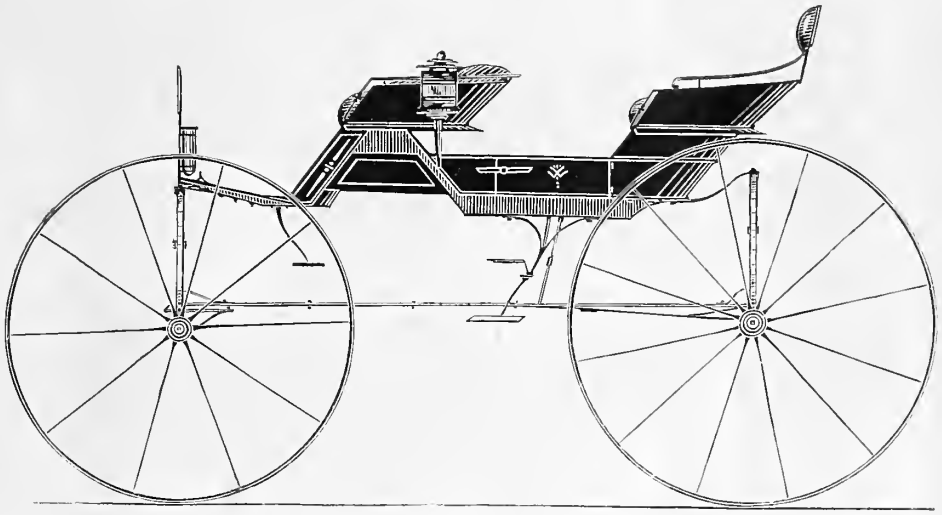
J. V. L., OF N. Y.—Your order for four plates of four carriages got up expressly for you, would cost a larger sum than you would be willing to pay. We are surprised at the ignorance some men entertain in respect to printing, and this is a case of the kind.



BRETT PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 152.



ROAD PHAETON. — ½ IN. SCALE.

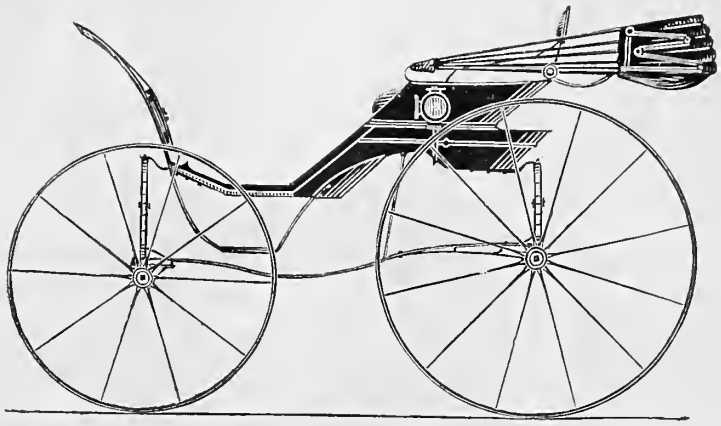
Designed expressly for the New York Coach-maker's Magazine.

Explained on page 152.

SHIFTING-TOP SCROLL COAL-BOX BUGGY. —½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

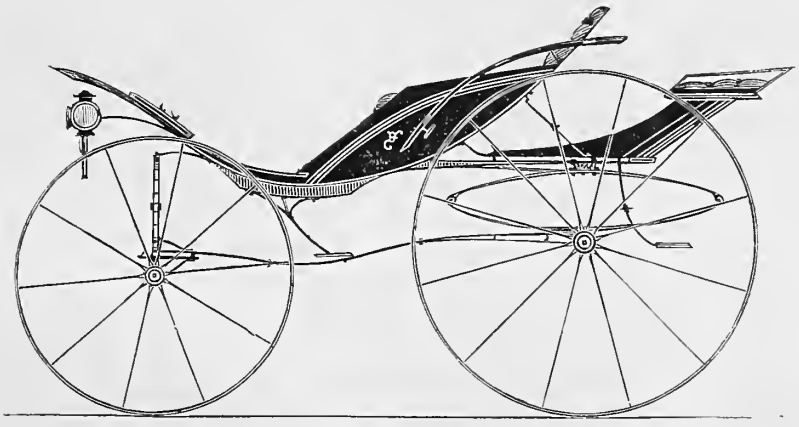
Explained on page 152



DROP-FRONT PONY PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 152.



PONY PHAETON WITH RUMBLE.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 153.

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XI. NEW YORK, MARCH, 1870. No. 10.

Mechanical Literature.

THE ADVENTURES OF THREE JOURS.

BY H. S. WILLIAMS.

CHAPTER IX.

HELENA is a small town of not over fifteen hundred inhabitants. No sooner had I landed from the ferryboat than I started out to hunt for a job. No carriage shop in the place, they told me, but there was a wagon shop, where they did a good deal of work. I soon found it, a dilapidated old shanty, and, on entering, I saw a man painting a wagon, while in the back end of the shop stood an old buggy body, and near it the running part. After bidding him good morning, I gave him the valuable information that it was a fine day, the assertion of which he seemed to doubt, as he immediately expressed a belief that it was "goin' to rain." I soon learned that the aforesaid buggy had been sent in for repairs, but as he could not trim it, why he had only agreed to fit up the iron and woodwork, and give it a coat of paint. I then found out the owner, and before night I had the material in the shop to trim it with, having made a bargain to do the work for fifteen dollars. Stirling, too, was equally fortunate, as he got a job to make a vest at a tailor shop, for four dollars, which I thought pretty good. Finding our friend, the overseer, I informed him of my good luck, and bade him good-by. when we sought a boarding-house. Board was only five dollars a week at the hotel, but as we plead poverty pretty strong, the landlord finally concluded to take us for a couple of weeks or so for four.

Next morning I went to work. I had made my calculations to trim that job in five days, if I had good luck, and in six at most. The second day I felt badly. A very peculiar sensation would shoot through my bones, together with an irresistible disposition to yawn and stretch, so that finally I had to quit work. Going to the boss, I told him how I felt, when he cried, "Oh, that's nothin', only a chill. You'll feel all right to-morrow." I did have a chill, sure enough, for before I reached my hotel my teeth were chattering, and I was shaking with an ague at a great rate. Of course, it was succeeded by a high fever, so that next morning I felt bad enough, but yet I went to work. When I went home at night, I found Stirling had had a chill, too. The next day I had another, and so it continued for a week, when I told my boss that I wanted him to get some medicines, and I would pay him as soon as I got my job done. He got me a lot of quinine, part of which I took, and it broke my chill. Yet I felt far from well. The balance I gave to Stirling, on whom it had the same effect. Yet, as I could manage to work, I felt in a good deal better spirits. Instead of six days to finish my job, it took thirteen, from the time I commenced, owing to my sickness, and it took Stirling nearly as long to make his vest, so that when I drew my money, paid for my medicine, and settled up with our washerwoman and landlord—of course I had to pay Stirling's board for one week—why I had only two dollars left, and no more work.

We determined, however, to reach Vicksburg, and so the next boat that came along we went aboard. Going to the captain, I told him my story, and he finally concluded to let us keep aboard, we promising to pay him fifty cents for all the meals we ate. As we were neither of us very well, we did not feel much like eating, so we made the trip very cheaply. Just before reaching Vicksburg, Stirling had another chill, and when we rounded to and lay beside the wharf boat, I left him to hunt for a job and a boarding-house, in a condition not unlike the boy, who, digging for a woodchuck, when asked if he thought he'd get him, replied, "Get him! why, I must get him, for dad's out o' meat!"

Of course you've heard of Sheppard's carriage shop, at Vicksburg. Well, I went there as fast and as direct as I could go, kicked the boss for a job, and was told that he did not care about a trimmer just then, but probably would want one when the spring opened. Very gravely informed him that "one bird in the hand was worth two in the bush," which seemed to have some effect on him, for, after a moment's silence, he said, "Well, I've got one job that needs trimming—am in no hurry for it, yet let's know what you'll do it for, and we'll see what we can do for you."

After half an hour's talk we struck a bargain, and then I went to hunt up a boarding-house. Now, boarding-houses are plenty in Vicksburg, but somehow they all wanted cash in advance, or enough baggage to secure the debt, and as I had neither, why I found a hard job before me. Finally, I came across a tailor, who offered to board us, and give Stirling a job, so I returned to the boat and had

him removed there. Going to Sheppard's, I commenced work, and when night came I drew two dollars, which I spent at the nearest drug store for medicines, as Stirling was really bad off. In a few days I had chills again, but as ours was a desperate case, I kept on at work, until I finished my job. Drew all my wages, paid my board-bill, and just then the boss received two letters, one from Port Gibson and one from Yazoo City, inquiring for a trimmer. As Stirling had now got about well, I concluded to start out again, so I gave him a couple of dollars—for he was working for his board and washing only—and prepared for my departure. Just then he received a letter from his mother in New Orleans, inclosing twenty-five dollars, so he determined to take the next boat down; and when I hinted that the two dollars I had just let him have a few hours before, as well as other money loaned him, would be very acceptable, he coolly informed me that he did not have more than enough to take him home. With this very impressive lesson of "man's ingratitude to man" on my mind, I started for Yazoo City, and with my usual luck I arrived there just one day too late, as they had a trimmer from Marsh & Denman's of New Orleans. Was introduced to that trimmer, a dandy young fellow, who informed me that he was getting one hundred dollars per month and board, which of course was very agreeable information to me. The shop he was working at, however, was not the only one in the city, so to the opposition establishment I went and succeeded in getting a job, at seventy-five dollars per month and board. I now began to see a little better times, the only difficulty being that, instead of money, I received orders on different stores, but as I was sadly in need of clothing, I took them, and worked on with a pretty good heart. At the end of two months I thought forbearance ceased to be a virtue, so I demanded a settlement, and I found the boss owed me one hundred dollars, but the only way he could pay it was by his note. Took it, of course; and after trying every body in the place, I finally sold it to our blacksmith for twenty-five dollars and an old clock. As I had no idea of turning to a Yankee clock peddler, I gave the timepiece to my washerwoman, and then packed up to start out again. The New Orleans trimmer advised me to go to Carrolton, sixty miles off, as a carriage-maker there had written to him and offered him good wages and a steady job. Concluded to try it, so I secured a seat in the stage and started. Half way is a pleasant little town called Lexington, where the stage stopped for an hour or two to change horses, while the passengers took supper. There was a very good wagon and repairing shop in the place, the boss of which happened to be at the hotel, and learning that I was a trimmer offered me a job. I asked him one hundred dollars per month, which he thought rather high, but finally said he would give eighty. Told him I had to go to Carrolton any way, but to hold the job until he heard from me, and so left him. Arriving at Carrolton, I went to the carriage-shop there, and telling the proprietor that I came from Yazoo City to trim for him, he asked me what I would work for by the month, and board in his family.

"One hundred dollars," I replied.

"One hundred dollars, whew! why, that's more than I make myself. Couldn't begin to think of giving such wages. Will give you forty-five, however."

Then I echoed back, "couldn't think of such a thing," and turning left him. Returning to Lexington by next stage, I found the job still open for me, so I went to work. On Saturday night the boss came to my bench, and exclaimed, "I suppose you want a little change, as you've been on a pretty good tramp," and he threw down a twenty dollar gold piece. It was very acceptable, I assure you, and that night I felt better satisfied than I had been for a long time.

The six weeks I worked there I had a fine time. The place was small but very sociable, and, as the boss paid up pretty well, I got along finely. But at the end of that time work gave out, so I settled up and started for Canton. Got a job there which lasted for two weeks, at two-and-a-half a day. Did not like the place at all, as it was too aristocratic to suit my plain republican principles, and as my Lexington boss wrote me to return and he would give me another job, I did so. My job gave out, and the small-pox broke out in the place at the same time, so I left for Yazoo City. No work to be had, therefore I took an excursion trip on a little steamboat, called the "Troy," for Grenada, on the Yallabusha River. As the boat was to be gone a week, and the fare was only three dollars for the round trip, I concluded it was about as cheap as boarding. When we reached Grenada I found my funds very low again, and I concluded to remain there and look for a job. Could find none at the carriage-shop, so I got work on some stages at the livery stable. Worked for two weeks, and found that I had not made a dollar, consequently I concluded to strike out again. Decided on Hillsboro', in Scott county. Knowing the drivers of the stages pretty well, I managed to get through without much expense.

You are getting weary, I see, pass over those cigars, and each of you take one. It will surprise you how much more interest you will take in my varied adventures while puffing a genuine *Habana*. I was satisfied with a three-center at the time of which I speak, yet, when I did have money, I spent it like a prince. That will do, thank you! You were in clover, while I was in the swamps of Mississippi.

As I was saying, I decided to go to Hillsboro'. Well, I went there, and reached that place about broke. Inquired if there was a carriage shop in town. "No! but a splendid saddler shop," said the landlord. "Be'ant you a saddler?" "Well I could make such things, I suppose," I replied. "Then let's go round and see the boss," put in the landlord, and nothing must do, but I had to go. Reached the shop, and I was introduced as a tip-top saddler looking for a job. "Glad to hear it," put in the boss, "for I want a jour, terrible bad, what'll you work for?" Told him I scarcely knew, did not care much about a job, but would think about it until next morning, and so left him.

Well, the next morning bright and early, the saddler came to my hotel, and begged me to go to work, offering me ten dollars per week, and board, cash every Saturday night. Finally, I concluded to try it, and staid there until the middle of May.

"And your work?" queried Loring.

"Beat the boss's to death. Why the old planters round there were getting so they would have no saddles unless I made them, so out of sympathy for the boss I quit him, and started out to Marion, in Lauderdale county. There I got a job at trimming and painting, with good wages, or to be more explicit, three dollars per day and board. Soon worked myself out of a job, how-

ever, and leaving the place, proceeded up to Macon, a small but very wealthy town, situated right in the heart of the prairie or canebrake region of Mississippi. Calling at the only carriage shop in town, the boss told me he had a full set of hands, and consequently could not give me a job. Wandering about the place, I met an old planter, and telling him what I was, he proposed to buy the material and have me go out home with him, and trim his old buggy and Jersey wagon, which I told him was the very best thing he could do. So he bought a lot of enamel cloth and damask, and taking the vacant seat beside him, while his little darkey occupied the opera board, we started for home.

When we were fairly out of town, the old gentlemen turned to me, and exclaimed, "By the way, what's your name?"

"Margrave, sir!"

"Margrave, hey, well, Mr. Margrave, do you ever drink any thing?"

"Occasionally, sir."

"Jim, you little rascal, where's that bottle I gave you in town?"

"I put it under de seat, mas'r."

"Under the seat, hey, well, let's get at it then, for I'm very thirsty, and this is a terrible hot day, you know."

The bottle was got out, and after I touched it lightly, the old gentleman took a pretty heavy pull at it, which he repeated several times during our journey, so that by the time we reached his home, he was pretty well corned. It was a large old fashioned, rambling house, and as we drove up, the old gentleman turned to the little darky, and exclaimed, "Jim, you rascal you, tell your Missus I'll not be at supper to night, tell 'er I've got a gentleman from—where did you say you was from, Mr. Graves?"

"From St. Louis!" I replied.

"Yes, tell your Missus from St. Louis—business of greatest importance—then, Jim, tell Aunt Mary to send our supper in this gentleman's room, do you hear?"

Another servant taking the horses round to the stable, I helped my new made friend in the room designated, where we soon had a very good supper served us, after partaking of which, the old gentleman kept me up the greater part of the night listening to his nonsensical absurdities, nor could I get him to bed until he had drained the last drop of whisky in the bottle.

The next day we made a bargain, I agreeing to trim his jobs for two dollars a day and board, and as I took it pretty easy, and had good living, I found it rather pleasant.

At the end of two months I finished my work, and after settling up, I returned to Macon, and put up at the only hotel in the place. For several days I had not felt well, and that night I was taken sick; indeed, so sick that I roused the landlord, who immediately sent for a doctor, and it was four or five days before I was able to leave my room; just long enough, by the way, to take every dollar I had to pay for medicine, the doctor's bill, and my board. When I did get out, I proceeded to the carriage shop, and as there was a pretty clever set of fellows working there, they interested themselves in my behalf, and soon learned that I could get a job at Columbus, some twenty-five miles above there, so they raised a purse of five dollars, which I received as a loan and started out. Reaching Columbus, I got a job at Atwater's, when I wrote to you, which letter you received, and for the first time since I left you at Memphis, I heard where you were, and as I had seen enough of Mississippi for one season, I immediately threw up my job, and here I am."

"And you are not sorry I should suppose, after all those up's and down's," said Gloner.

"Particularly the downs," put in Loring.

"Not at all sorry, I do assure you, and henceforth I propose to keep in sight of you if possible, and see if my luck won't change. Messrs. Lawer & Fountaine can count on me for their trimmer as long as there is any trimming to be done. But I am rather sleepy after my long story, and I propose that we retire to the "sylvan shades of blissful sleep," as my old friend Thomson says.

(*To be continued.*)

TREATISE ON THE WOODWORK OF CARRIAGES.

Continued from page 117.

THE two sides of the body, being similar in symmetry, the demonstrations made on one can be applied to the other. Therefore, with the exception of some figures expressly given in order to define the generation of surfaces, all the bodies will be represented in half. We shall always suppose the bottom part of the body placed on the horizontal plane; the vertical plane or elevation passing the longitudinal axis, and the auxiliary plane generally to the right on the prolongation of the vertical plane. Fig. 47, that conveys a drawing of the body of a phaeton, represented in half on the scale of one-tenth, is constructed in that hypothesis, and in a similar manner to Fig. 28. The only difference that exists between the two figures is, that one being in perspective, shows the points, the lines, and the surfaces in space, that are indicated by capital letters, whereas in Fig. 47 the same points, the same lines, and the same surfaces are brought over upon the planes by projections indicated by italics.

The underneath part of the bottom (Fig. 47), being placed on the horizontal plane, would project itself along the ground lines from g to c' on the vertical plane, consequently all the other points of the same body would project themselves in that plane above the ground line.

In the same manner the axis of the body, being located in the vertical plane, all the points belonging to that axis would project themselves in the horizontal plane along the ground line from h_0 to b_0. All the other points under consideration, being supposed in front of the vertical plane, will project themselves in the horizontal plane below the ground line.

It will be the same with the auxiliary plane; all the points belonging below the bottom of the body will project themselves on the ground line from f to c, and all the points of the axis on Y' Y from i to f. All the other points under consideration of the body will be projected to the right of Y' Y.

This arranged, we will then indicate the manner of proceeding for the execution of the projections on each plane. As the object here is the execution, we will suppose the three planes united on the same plane surface.

The instruments to be employed are the rule and the compasses. The joints or fittings called the segments, made use of in other manufactures for tracing curves, are not employed in carriage woodwork; they are replaced by calibers, which name we shall employ, as it is more gen-

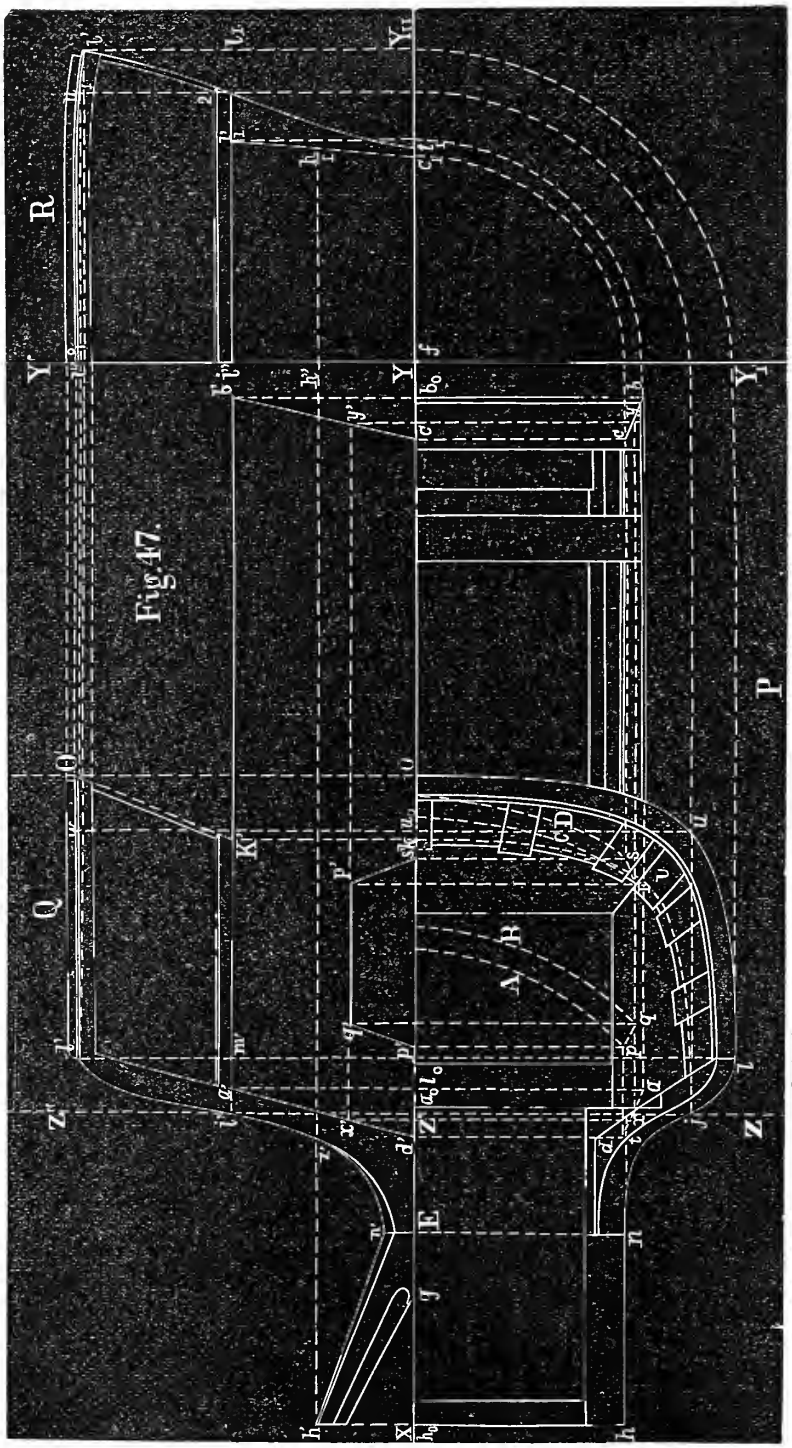


Fig. 47.

P. Horizontal Plan; Q. Longitudinal Elevation of the Body; R. Lateral Elevation of the Body.

erally used. In order to draw the curves, a sketch is first made on the drawing; then they are copied by means of transparent paper, in order to transfer them on to a slab of wood, intended for the purpose of making the calibers; the calibers are then cut out with the saw, and they are finished by a molding plane.

The paper preferred for plans on a large scale is black waxed paper, because the tracings generally made with white chalk can be washed off by a damp sponge. Whatever paper is used for plans to working size, or for plans reduced to any scale, should be perfectly stretched on a plane surface. For this purpose, wet the paper all over its surface with a damp sponge, then secure it around the edges by slips of wood, fastened down by nails at distances of every two or three inches apart; or, if the drawings are small, the paper can be gummed or secured by any other process. Card board or bristol board, being too thick for the water to penetrate equally, it is used dry.

Small drawings are generally executed on a surface laying horizontally, or a little inclined, as desks are commonly made; but to execute large plans it is preferable to work on a vertical surface, because it is necessary in order to overlook the whole at a single glance, to view the draft from some distance.

To begin, draw on the board an angle composed of the bottom line, X Y, and another straight line, Z Z′ Z″. The board is divided by these two straight lines in the way that line X Y determines the horizontal and vertical plan, and that line Z Z′ Z″ passes at one of the points j', where the dimensions of the body are usually given. Starting from these two lines all the other dimensions are set down.

Commence first with the vertical projections and with the principal parts. For a phaeton body proceed as follows: Carry the height of the box, which in this instance forms the main part of the body, from Z′ to j'; the bottom line of the body, being parallel, and run through j' parallel to X Y, —length being indefinite, we call it $j'b'$; mark on this line the length of body from j' to b'; the straight line thus obtained is the lower projection of the body in elevation.

Next, indicate the depth of the round seat, from j' to K′, width of the front pillar from j' to a'; through point a' carry line $l'd'$, giving the projection of hind pillar; next indicate height of round seat from m' to l', height of pillar from h_0 to h'; also the distance from j' to h'. Finally, show the remaining vertical projections, such as the curve $l'j'n'$ of front pillar, lines $h'n'$ under the footboard, the moldings, the round seat, the footboard, and the straight lines O′K′ and $b'c'$, of which the first forms the intersection of the vertical plane and of the middle of the round seat, and the other the projection of the rear side of the body. The inclination of the straight lines $l'd'$, O′K′ and $b'c'$, is governed by no other law than the taste of the day. Draw also the projection $x'y'$, under the wheelhouse; but the projections $p'q'r's'$, can only be determined after they correspond with the same points of the horizontal plan. With the exception of the projections of the wheelhouse all others can be given on

the vertical plan, without the assistance of the two other plans of projection. The projections of the vertical plan (Q) furnish two dimensions of the body, length and height; consequently we have yet to determine the dimensions of the width. The body-maker begins with showing them on the auxiliary plan (R) as follows: Through the principal points of the body, such as l' j', whereof the dimensions are generally given, carry lines for operating upon, $l' l_1$, $j' j_1$ parallel to X Y. Mark on these lines on the auxiliary plan, commencing at Y' Y, the half widths of the body, first half width of round seat, $l'' l_1$ or $j'' j_1$ according to where the dimension is fixed, then half width of body $j' b_1$, $f c_1$; carry from c_1 the distance $c_1 t_1$ an inch or so for the projection of pillar from the body. Joining then the points thus obtained through the straight lines $j'' b_1$ $b_1 c_1$, curve l_1 j_1 t_1, and tracing the molding at the bottom of round seat over $j' j_1$, and also the widening 1 2 of panel, there will be all the projections of the auxiliary plan with the exception of the molding on top of round seat, the projection of which can only be formed with accuracy by the aid of the two other plans of projection. The form of curve, l_1 j_1 t_1, and the inclination of the straight line, b_1 c_1, change according to the taste of the day.

To construct the projections of the horizontal plan, it is first necessary to lay down the dimensions of length and width, as fixed on the two other plans of projection. Commence with running down from all the points, h', n', j', l', a', b', c', d', O', K' of plan Q, straight auxiliary lines, $h' h$, $n' n$, $j' j$, $l' l$, $a' a$, $b' b$, $c' c$, $d' d$, $O' o$, $K' k$, perpendicular to X Y, as sufficiently prolonged in plan P; carry on these lines, parting from X Y the corresponding widths, as determined on plan R; for instance, $h'' h_1$ from h_o to h; $j'' j_1$ from Z' to j; $l' l_1$ from l_o to l; $j'' b_1$ from b_o to b', and from a_o to a; f c_1 from c' to c, and from d' to d; joining, then, by the straight lines $h_o h$, $c' c$, $b_o b$, b c, b a, a d, t h, and by the curve l j n, the points so obtained, we will have, on the horizontal plan, the projections already laid out on the two other plans.

The four curves A, B, C, D, which give the projections of the wheelhouse, are circles described from point E as axis of the fifth-wheel of the front gearing, and of which we will speak in the second part, treating of the cut-under for the passage of the wheels. The intersections of these curves and of the side of box, have their projections on the horizontal plan, at points p, q, r, s. We obtain the vertical projections by conducting through these points auxiliary lines p p', q q', r r', s s', perpendicular to X Y. The points $p' q' r' s'$ at their intersection with the lower part of wheelhouse and bottom, give the same projections in elevation. Joining, also, $p' q'$, $q' r'$, $r' s'$, we find the projection of the wheelhouse on the side of the body.

The projection of the lower part of the round seat has also been stated on plan P by two of the points l, o, taken on the outside of the upper molding; curve l u o is shaped voluntarily, but the other, j v k, indicating the exterior projection at the bottom of the round seat, is formed out of the first, in the way which we will show in the second part. *(To be continued.)*

EFFECTS OF COMPETITION.—A healthy competition is waged by two opposition stage lines in Wisconsin. One line carries for nothing and gives a dinner to each passenger; the other carries for nothing and gives each passenger a dinner and a pair of buckskin gloves.

A GOOD HACK.

(Concluded from page 134.)

A PERFECT cover hack should be able to walk nearly five miles (toward home), trot at least twelve miles, and gallop twenty miles, within the hour, with ease to himself and comfort to his rider. But there are famous hacks that only canter and gallop, and one of the best and handsomest we ever knew could walk five miles and trot seventeen miles an hour (like oil); but galloped like a camel, rolling and laboring every yard. She was bred between a Welsh pony and a thoroughbred horse.

Pace is essential, because those who ride cover hacks are sure to be late and in a hurry; but easy, elastic action, —only to be found in well-shaped, well-bred animals,— is equally essential, because you desire to arrive as fresh as possible, after your bustle, to cover-side, and above all, to enjoy the change from a tired hunter to a fresh hack, and *glide*, as it were, towards home.

A perfect cover hack can jump pretty well, especially stiff timber, creep through cramped places, and lead over impossible places, and then he is quite equal to a dog with harriers, or to carry your eldest hope to foxhounds.

The luxury of the age in horse flesh is the Park hack, ridden daily for pleasure only, capable, if perfect, of doing a long day's journey well; but that is not essential, as he is seldom required to go more than five or six hours at a moderate pace. The true Park hack must be handsome in a picturesque point of view, which is quite different from the handsomeness of a hunter—as different as the ideal form of Mars and Apollo—easy in every motion and pace, full of courage, yet with the sweetest temper, silky, elastic, graceful. Mares are admitted among perfect hacks, and are often more beautiful, though less to be depended on, than geldings. The latter are, all other things being equal, preferred.

The statesman, the great lawyer, the surgeon of European reputation, the capitalist on whose signature miles of railroads and acres of docks all over the world are constructed—the journalist, whose brains are to him both capital and power—all the hard workers whose means permit and tastes allow—all the army of pleasure-seekers who work hard at amusement—all the gatherers and distributors of wealth may find in a perfect Park hack a luxury, a rest, a healthy excitement, a pleasant fatigue, a medium for grave or serious converse, for light, lively gossip, for making love, for making friends, for patching up quarrels, for selling bargains, or arranging political combinations, which the old-fashioned squire, the provincial manufacturer, and the turf man who never rides, and who looks on horses as mere machines for betting on, cannot understand, and therefore despise. A fine form and elegant manners are indispensable in the Park hack. A hunter may have a plain head and a rat tail, may be a stumbling slug on the road, or a hard puller in the field, but if he fence brilliantly, and can gallop, and live through a first-class run in a first-class country, he will command a long price, because all minor faults are forgiven in consideration of his perfection in his trade.

The following sketch of the Park hack is from the pen of one of the most fashionable dealers and finest horsemen of Piccadilly:—The Park hack should have, with perfection of graceful form, graceful action, an exquisite mouth, and perfect manners. He must be intelligent; and amongst horses, senseless brutes are legion, for without intelligence, even with fine form and action, he never

can be pleasant to ride. Thoroughbred is to be preferred; and if not quite, as nearly thoroughbred as possible, of any color except mealy or foul marked. White marks often much improve, sometimes quite disfigure a horse. The height may be usually taken at from fourteen hands to fifteen hands two inches; but tall horsemen and women look best on tall horses. That most thoroughbred hack, Fire King, purchased for the Emperor of the French, at the Agricultural Hall, in May last, was full fifteen hands three inches.

The head should be of the finest Arab type. The neck well arched, but not too long. The shoulders, light at the points, long, and grown well into the back. The loins should be accurately arched, and the quarters level and nicely rounded, not drooping toward the tail (like many capital hunters, famous race-horses, and useful road hacks). The mane and tail should be full, straight, without the least suspicion of a curl, and every hair as soft as silk, four clean, well-shaped, well-placed legs, the fetlocks rather longer than would be chosen for a hunter, and from such a form action may be confidently expected, pleasant to the rider, and a pleasure for even the commonest observer to follow.

The walk of a Park hack should be perfection—fast, springy; the legs moving apparently independently of the body without apparent exertion, with all certainty of machinery, the head carried in its right place, the neck bent, and the tail displaying a full flag gracefully keeping time with the footfalls. From the walk he should be able to bound into any pace, in perfectly balanced action, that the rider may require.

Those who remember the warrior Marquis of Anglesea on his Pearl, will be able to realize this sketch. But a survey of Rotten-row in the season will always present some pictures of life and motion, fire, courage, and docility to which no painter could do perfect justice.

Perfection can only be obtained by fortunate and wealthy purchasers who know how to choose, or who allow those who do know to choose for them. Such horses have been sold at four hundred and even five hundred guineas. The ordinary price of a park hack may range from eighty guineas to two hundred pounds.

Although more beautiful riding horses may be seen in Hyde Park than in any other city in the world, there are also more discreditable brutes to be seen there than elsewhere. Besides screws of all kinds, the well-worn ci-devants of riding-schools, immortalized by John Leech, and the many useful animals whose owners neither deserve nor desire observation, there are all the eccentricities of a city of three millions of inhabitants. Every thing odd in color, in shape, and in training; huge men on ponies bending under their weight; little men on giraffes. The perfect horseman on the perfect hack, is jostled by the lout with no qualification but the pluck of ignorance, on a star-gazing wretch that has only received the rudiments of a polite education.

"There should," observes the correspondent already quoted, "be as much etiquette in riding in Rotten-row as in the ball-room of a palace. That, however, is a part of national education in which there is much room for improvement."

But the Londoners are not the only comic or dangerous riders. Sometimes country gentlemen bring their stale snaffle-bridle hunters, lumbering along terribly out of place; others indulge themselves in riding cross-made animals of their own breeding, with no other merit. The latest and most remarkable exhibition of wild horsemanship was not performed by an ambitious clerk, or an amateur dealer intent on showing off a half-broken colt, but by a young gentleman of fashion, the descendant of a long line of hunting men, famous in a famous hunting county. The fact is, as one of the greatest masters of hounds and finest horsemen lately remarked, "In the field a hard fellow who can stick on, and does not care for falls, will often hold a place in the first flight; but for the Park, the horse should be perfectly broken, and the rider should understand those principles of horsemanship which, in these fast days, are too much neglected in England. The well-broken Park horse walks, trots, and canters, and changes his leg in cantering on slight indications of hand and leg. Too many hold their reins like a bunch of tapes, and only use their legs to spur."

As to ladies' horses, a perfect Park hack is a lady's horse, with the exception that a man does not look amiss subduing a fiery animal, and by degrees bringing him down to obedience. To use a horsey term, a good horseman may enter the Park with a fine-tempered horse, "a little above himself"—not vicious. The rider with fine hands endangers no one, if his fresh, high-couraged horse have a fine mouth; while the dullest brute with a leather mouth may be at times most dangerous. Above all things, in choosing a Park hack, avoid a nervous animal, which, like an armed coward, is one of the most uncertain of creatures, and, when mad with fright, loses even the instinct of self-preservation. For the same reason, a horse that shies from timidity or defective eyesight (many horses shy from high spirit when not sufficiently exercised) is as much to be avoided as a stumbler. In country riding, a horse has room to shy. On the other hand, it is magnificent to see how sometimes a high-couraged horse will positively enjoy and display himself at the sound of shouts, hurrahs, musketry, or military music. In the Life of Sir Fowell Buxton, it is mentioned that his favorite horse, John Bull, stood in a grand attitude, when surrounded by a mob who were hooting and hissing the Prince Regent, excited but motionless, like a fine statue. The Prince was so much delighted with the horse's behavior, that he sent to purchase him, but "John Bull was not to be sold."

A word about the weight-carrying cobs, which in perfection are as scarce as any class it is possible to name. Plenty of cart-bred brutes, with thick, hairy legs, heavy shoulders, and round quarters, are to be found in the Park, bestridden by stout gentlemen, whose ignorance it may be presumed, gives them courage; plenty, too, that go safely in very vulgar form, whose chief merit is their docile stupidity. But the ideal cob to carry a millionaire, is a stout body, short strong flat legs, with fine sloping shoulders, and a thorough-bred head and neck. This cob must walk admirably, with reins on his neck, nodding his head, and must pace from Hyde Park to the Bank if needed without slipping, sliding, or paying the slightest attention to the most unexpected sights or sounds. A very light mouth is, perhaps, not essential, as your welter-weight generally hangs more or less on the bridle. He must trot or canter well—trot for choice—smoothly, and if fast, all the better; but a Park cob need not be fast, if true in his paces. If, then, up to seventeen stone or upward, of a good color (a lady may ride a piebald or a cream, but a banker cannot), with suitable manners, he is

worth from one hundred to three hundred guineas, according to merit and the pocket of the customer.

A young hack, however good, is easily spoiled by a careless rider, just as ladies' horses are often spoiled for want of regular exercise. Half the accidents that take place occur from this cause. Good stud-grooms do not consult my lady, but give Sultan or Fatima, full of blood and full of corn, a full hour's exercise in the morning early before the side-saddle is called for.

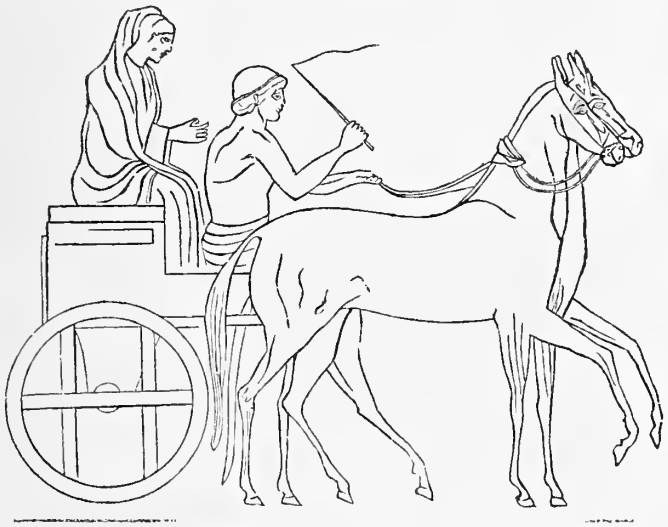
"So you have got the young Kingston horse back again?"

"Why, you see, sir, the gentleman that gave me three hundred for him took him down into the country, and rode him about all the summer, with one hand and a snaffle bridle; so I have to break him over again!"

Park riders, a last word. Don't forget your hands!—*All the Year Round.*

OUR GRECIAN CARRIAGE MUSEUM.—V.

The next illustration is from an ancient Grecian vase, representing the flight of Priam and Æneas from ancient Troy, as described in the pages of Homer.



FLIGHT OF PRIAM FROM TROY.

Some of the painted Grecian vases, furnish interesting studies for the carriage builder and literary scholar. In Millinger's volume * we find an imperfect representation of a car drawn by two horses, in which is seated a young man dressed in a red tunic, going at full speed. The car is hung very high, and probably was designed for racing purposes; the wheels are singularly constructed without either hubs or spokes, instead of which are three bars one much stronger than the others, placed diametrically and perforated to admit the extremity of the axle-tree, and is crossed at right angles by the other two bars, the horses have neither reins nor harness, but are yoked to the car like oxen. Instead of bridle they have head-stalls, probably intended to keep them close together; their collars support the yoke, which is a transom-bar fitted to the extremity of the pole; the driver is seated, contrary to the general custom in racing. Instead of reins, he holds a long wand over the heads of the horses, bent at the extremity like a shepherd's crook,* such as is used in Italy and other countries at the present day, for driving oxen. At the end of the crook, two objects apparently of metal are shown, which by producing a noise were intended to animate the horses in the same manner as bells have since been used.† In the other hand of the driver is a goad, and a red spot on the flanks of the horses, is doubtless shown to mark its effects. This mode of driving horses is said to have been taken from the Lybians, and other African nations. Even in later times the Numidian cavalry would never adopt the use of bridles, but drove their horses by a goad and the voice.

The subject of the painting in all probability alludes to the chariot races, which took place at the Panathenaic games in honor of Minerva, where they held the highest rank among the various contests, and entitled the victor to the greatest honor. Other motives may have concurred in the choice of this subject on a monument in honor of this goddess.

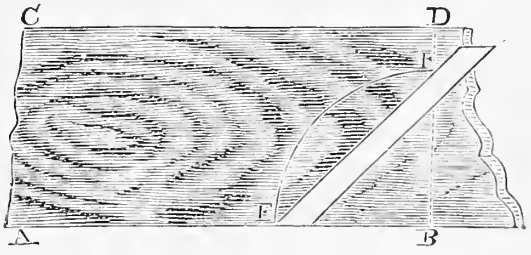
* Painted Greek vases from collections in various countries, principally in Great Britain, illustrated and explained by James Mullingen. London, 1822. This vase was discovered with others by M. Burgen, in 1813, near Athens, on the road leading to Thebes.

* See an Account of Eustathius in Homer's Iliad, v. 845.
† Herodotus, B. IV. ch. 189.

GEOMETRICAL EXERCISE.

BY P. B. J.

The introduction of geometrical exercise into your excellent Magazine will have a greater tendency to excite a thirst amongst my brother craftsmen for philosophical instruction, than any other scheme you could possibly devise, and particularly so if such is treated in a form suited to the capacity of those for whom they are intended. Although the generality of mechanics are displeased with the sight of a geometrical theorem (from experience I know this to be true), yet, if moderately persisted in, the plan will ultimately prove successful, for truth is mighty, and must prevail, and, however, rude and savage men may be, yet they are always open to reason and common sense, if left to think for themselves. Certainly no study can be better calculated to awaken the dormant qualities of the mind, than geometry: it will *force* them into action. I, therefore, send you herewith another exercise, which you may, perhaps, think worthy of a place in The New York Coach-maker's Magazine, and, if acceptable, will furnish more hereafter.



By the help of a mitre square, and a pair of compasses, to square the end of a plank:—Let A, B, C, D be a board of which we wish to make the end square at D, B. Having made the edge A B perfectly straight, assume any point (B, for instance) from which we are required to cut the end square, open the compasses any

distance less than the width of the board, and draw the portion of a circle, as E F, next apply the mitre square to the point E, as shown in the figure, and its edge will cut the circle in E F. If, now, from the point F we draw F B, it will be square to A B, for, by the definition of a mitre, the angle F E B is equal to 45 degrees, and, as F B is equal to E B, the angle E F B is also equal to 45 degrees; hence the two angles F E B, and E F B, being together equal to 90 degrees, the other angle, E B F, is equal to 90 degrees, or square to the line A B.

Note.—By this problem we may ascertain the accuracy of a *square* by means of the *mitre bevil*, or the truth of the *mitre bevil* by means of the *square*, and thus, when either of the tools are not at hand, we may find a substitute for the one in the other.

Pen Illustrations of the Drafts.

BRETT PHAETON.

Illustrated on Plate XXXVII.

This drawing is original, designed expressly for this Magazine, by one of our own artists. It will make a splendid open carriage for either the park or the summer watering-place, being both open and airy—two essential requisites in a pleasure carriage. In this design is embodied every new point in the fashions, or improvement in construction suggested by experience and progress in art. The body is a paneled one, the extra moldings in the center, both lateral and vertical, being glued on. We call especial attention to the position of the dickey-seat, the same being arranged with a view to lightness in appearance and conformably to the latest French fashions. Width across the back seat (in the clear), 50 inches; axles, $1\frac{1}{4}$ inches; wheels, 3 feet 10 inches, and 4 feet high; hubs, $4\frac{1}{4}$ by 7 inches; spokes, $1\frac{1}{4}$ inches; rims, $1\frac{1}{4}$ deep; tire, $\frac{5}{16}$ by $1\frac{1}{4}$.

Painting.—Black, a broad stripe in blue, with two narrow ones on it, in white, near the edges.

Trimmings.—Blue broadcloth.

Workman's price for building the body, $75; manufacturer's charge for the carriage, well finished, $1,400. Charges for repairing the different parts, about the same as for the Park Phaeton, printed on page 104, of this volume.

ROAD PHAETON.

Illustrated on Plate XXXVIII.

We think this is a very pretty design for a light road phaeton, beautifully modeled, and, if properly constructed, will answer the expectations of any moderate customer's desire. Its cheapness, as well as neatness, recommends it to public favor as a summer carriage for exercise in the open air, in fine weather. The "cut-under"—in this case small—could easily be enlarged without detriment to the design. Width of body across the back seat, in the clear, 48 inches; axles, 1 inch; wheels, 3 feet 8 inches, and 4 feet 1 inch high; hubs, $3\frac{1}{2}$ by $6\frac{1}{2}$ inches; spokes, 1 inch; rims $1\frac{1}{8}$ inches; steel tires, $\frac{1}{4}$ by 1 inch.

Painting.—Brown; under carriage, yellow, striped black.

Trimming.—Blue-black broadcloth.

Workman's charges for making body, $40; price of finished carriage, $550 to $600.

New York Charges for Repairing—*Woodwork.*—Hub, $5; spoke, $1; rimming wheels, $18; drafting, $1; axle-beds, each, $4; head-block, $3; perch, $5; spring-bar, $2; shaft-bar, $2; new shaft, $4; pole, $9; yoke, $7.50; fifth-wheel bed, $2.50. *Iron Work.*—New tires and bolts, $18; tire-bolts, 25 cents each; carriage-bolts, 50 cents each; new elliptic spring, $16; new fifth-wheel, $5; resetting axles, $6. *Trimming.*—Leathering shafts, $6; recovering dash, $12; new apron (rubber cloth), $10; whip-socket and fixtures, $3. *Painting.*—Touching up and varnishing, $45; repainting, &c., $90.

SHIFTING-TOP SCROLL COAL-BOX BUGGY.

Illustrated on Plate XXXIX.

Our patrons have in this design a very pretty thing, in our judgment one of the best we have ever published, it being both light and graceful. The scroll-work ought to be raised molding, painted in different color from the body, but not too gaudy. Width of seat, 38 inches; axles, $\frac{7}{8}$ inch; wheels, 3 feet 11 inches, and 4 feet 2 inches; hubs, $3\frac{1}{2}$ inches; spokes, $\frac{7}{8}$ inch; rims, $1\frac{1}{8}$ inches; steel tires, $\frac{3}{16}$ by 1 inch.

Painting.—Body and carriage, black; stripe under-carriage three fine lines red.

Trimming.—Blue-black broadcloth, edged with patent leather, and ornamented, in front of cushions and falls, with raised figures underneath the cloth facings.

Work on body (by the piece), $18; carriage part, $8; wheels, $10; shafts, $3.50; spring-bars, $3.* Price of buggy, $465.

Repairing will cost the same prices as given in detail for the "Nonpariel Top Buggy," on Plate XXVIII in this volume.

DROP-FRONT PONY PHAETON.

Illustrated on Plate XL.

This original design for a pony phaeton is different from any hitherto presented to the public, being modeled very much after the buggy pattern. The inside of the rockers will require an iron plate to make it sufficiently strong to stand the wear and tear of use; but judgment should be exercised that it be neither too light for practical service, nor too heavy for the lightness of the vehicle—but just the thing necessary. The lateral line drawn

* Note.—The price for making spring-bars, as reported last month, is erroneous. The correct price is given in this number.

through the middle of the side panel represents a raised molding. Width on body, 40 inches; axles, $\frac{7}{8}$ inch; wheels, 2 feet 10 inches and 3 feet 4 inches; hubs, $3\frac{1}{4}$ inches; spokes, $\frac{3}{4}$ inch; rims, 1 inch; tires (steel), $\frac{3}{16}$ by $\frac{7}{8}$ inch.

Workman's price for building the body, $20; carriage part, $8; wheels, $10; shafts, $3.50; spring bars, plain, $2; carved, $3. Price of finished phaeton, $475 to $500.

PONY PHAETON WITH RUMBLE.

Illustrated on Plate XL.

This and the accompanying design, both on the same plate, are published for the especial benefit of such as will be receiving orders for carriages suited to summer watering-places this spring, in the hope that they will be well received. The pillar—a sham one—is formed by attaching the molding to the side of the worked-out solid quarter, as shown on the design. The "rumble," although "an old institution" in Europe, is comparatively a novelty with us in this country. Axles, 1 inch; wheels, 2 feet 11 inches and 3 feet 8 inches; hubs, $3\frac{1}{2}$ inches; spokes, 1 inch; rims, $1\frac{1}{8}$ inches; tires (steel), $\frac{3}{16}$ by 1 inch.

Workman's charge for making the body, $25; for making the rumble (always a separate affair), $7 additional. Manufacturer's price for phaeton, $500.

Painting.—We decline giving instructions in these two last cases, because taste varies in this respect when applied to pony phaetons, probably more than any other carriage. In most instances a showy color is used, for which the only reason we can offer is that the customers who use this class of carriages, are themselves of the gayer kind of people.

Trimmings.—Corduroy or broad cloth, drab colors.

Charges for Repairing.—*Wood-work:* New wheels, $18; hub, $5; spoke, 75 cents; new rimming, $16; shaft-bar, $2; spring bar, $2; axle-bed, $4; perch, $6; head-block, $3. *Iron-work:* Resetting tires, $8; new tires and bolts, $18; tire-bolts, each, 25 cents; carriage-bolts, each, 30 cents; fifth wheel, $5; resetting axles, each, $3; when only one arm is set, $2. *Painting:* Repainting, $65; touching up and varnishing, $30. *Trimming:* Recovering dash, $14; leathering shafts, $7; new apron (rubber cloth), $10; whip socket and fastenings, $3.

Special Notice.—We shall give a rich collection of original designs in the April number of this Magazine, consisting of an elegant landau, mounted on elliptic and C-springs; a rockaway, with the front seat to turn out; a standing top piano-box buggy; a coal-box road buggy; and a simple piano-box of an entirely new design, five in all, giving the spring fashions and making the number one of the most valuable yet published. This number can be had separately for 50 cents.

Sparks from the Anvil.

THE CORRECT LENGTH OF AXLES AND AXLE BEDS.

BY P. B. J.

Our particular attention has been directed to the subject which forms the caption of this article, and for the good of the public, we feel it our duty to give superintendents and blacksmiths a lecture on the setting of axles, and obtaining the correct length of these and their axle beds. Of all the defects which the inventive genius of the last half of the nineteenth century has still left to mar the beauty and perfection of carriage work, this stands forth the most prominent. It seems, that in the stretch for new and wonderful things, the mass of mechanics are prone to overlook the commonest principles connected with old usages, when, perhaps, a proper attention paid to reducing to a system, and properly executing the old, would render the introduction of the newer and cruder styles far more profitable. How to give an axle proper set, is a question that has to do with the beauty and *durability* of all its parts more than any other, yet it is a common practice among many, to utterly disregard every principle of utility and common sense in the setting of an axle. It is rather surprising to note the diversity of opinions in regard to the length of axle beds. There are many old, gray headed men among us, who seem to be totally ignorant of the most simple mechanical rules, which can be geometrically applied to properly obtaining the desired results. Many are perplexed in this task, for the want of knowing how long to make an axle-bed, in order to get any desired width of track, and, at the same time, to have the axle set as it should be—properly.

Now, I have seen and heard old blacksmiths, who have become gray in the service, say to the wood workman, "Cut off my axle beds for me four feet two inches" intending it for a four feet eight track, not knowing the length of the hub or dish of the wheel. They even go so far as to iron the carriage part, with the pole and shafts—the setting of the tire being of the last consideration. Is this mode not erroneous? *I know it is*, even if it is done by one of Fred. Wood's best smiths. I take into consideration the swing and dish of my wheels (a *desideratum* completely ignored by those who cut off their axle beds by guess), which I consider of more importance than any other in setting an axle. What I mean by *swing* is, the difference between the width of the top and bottom of the wheels, when resting on the ground. There is another fact in connection with this subject, and that is, the lower the wheels are, the less will be the swing; and the longer the axle bed must be. I consider the swing affects the track, and by it, and the dish of the wheel, I am governed in the length of my axle, and if this part of the operation is neglected, it is a matter of chance whether the wheels be parallel, or even track right.

The beauty of a carriage is not altogether in the style of the draft, nor in the finish of the painting or trimming, nor does its durability depend upon these alone. If buyers would look more to the construction of wheels and modes of setting axles, there would not be so much dissatisfaction with those on whom the craft depend for

patronage. I think the wheels and axles constitute the most important part of a carriage, and where the wheels, axles, and springs are good, I have not the least doubt that the carriage will give entire satisfaction, both to the buyer and seller; whereas, if they are not good, it injures the maker's reputation, and is a source of expense and vexation to the person who uses it.

Some mechanics seem to think that a straight wheel is a *desideratum* to be obtained. The primary cause, doubtless, of the earlier wheelwright in giving his wheel the excessive dish he was accustomed to, was to provide against casualties from deep ruts, but it has been left to the more modern coachmaker, to discover that the spokes of no-dished wheels have a trembling motion imparted to them by driving over rough roads, which, if they do not actually "work," yet, they will present all the appearances of being "gone," by cracking the paint about the shoulders of the spokes, so that the probabilities are, that a customer becomes terrified, and will leave you forever, having no confidence in your reputation, and dreaming all the while that his wagon is liable to break down at any moment, unless he is furnished with a new set of wheels. We are glad to note that some of our best manufacturers having, by experience, seen the fallacy of straight wheels, have gone back to the old land-marks, and are now dishing their wheels from three-eighths to three-quarters of an inch. I find that wheels to wear well, should dish a little, say, from one-quarter to half an inch, measuring from a straight line across the front of the wheel to the front of the spoke; but you will frequently find in wheels that are well made some difference after the tire is put on, and if the dish is too much, remove the tire before the spokes are sprung beyond recovery.

(*To be continued.*)

Iron and Steel for Carriage-makers.—The attention of our readers is directed to the advertisement of our friend, M. W. Dean, who makes it his special business to keep on hand a full supply of such stock in iron and steel as carriage-makers require. He furnishes as references some of our best carriage-builders.

Paint Room.

THE PRIMITIVE COLORS.

The accompanying illustrations are so disposed as to show how the three primitives can give the seven colors. Thereby red, blue, and yellow, will produce green, orange, and purple, which are shown in the first diagram of three equilateral triangles. In the second diagram, the tints introduced are green, orange, and purple, with a black center as before (black, as well as white, being considered no color). These three, by mixture of two together, produce brown, olive, and slate tints, which are explained by circumscribing the diagram with circles and subdivisions, and passing the colors gradually around one into the other, till, in each intermediate division, between any two *principal* colors, the declared production is certainly found. This method certainly shows the practitioner how to make the tint he may require. Diagram, Fig. 2, might be drawn at one stroke of the pencil upon the wall of the shop, as a guide to the young beginner.

Fig. 1

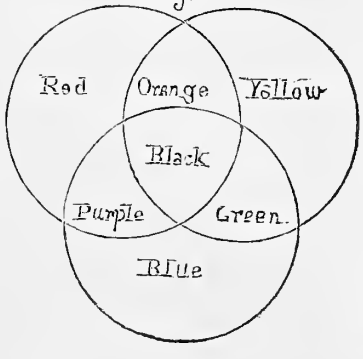
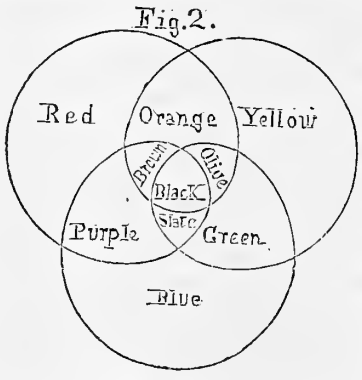


Fig. 2.



Badger Brush.

VEGETABLE OILS USED IN PAINTING.

There are two kinds of oils found in plants, called respectively, *volatile* or essential oils, and *fixed* oils. The former are those of which essences and extracts are made, and are called volatile, because when exposed to the air they will, like ether or alcohol, entirely evaporate. The fixed oils, on the contrary, will not evaporate, hence their name. The latter are divided into two classes, *unctuous* or *greasy* oils, and *siccative* or *drying* oils. The drying oils are of great value in the arts, their principal application being in the art of painting. They are the vehicles for the distribution of colors over the surfaces of materials which it is desirable to ornament, or to protect from the chemical action of external substances. Thus used they perform a twofold office, as beside enabling the colors to be uniformly spread upon any surface, they form of themselves a protective coat, owing to their siccative properties.

The sources of the siccative oils are numerous. They exist in the seeds of the order of plants, called by botanists Linaceæ, commonly known as the flaxes. Of these a species is grown in the East Indies, and large quantities of the seed are imported to this country from that source. The plant is also largely cultivated in Ireland, Holland, America, and other places, not only for its fiber, but the seed. The oil obtained from flaxseed, commonly known as linseed oil, is an important and valuable article of commerce, and is sold in two states, called *raw* and *boiled*.

Beside the flaxes, numerous other plants produce seeds containing siccative oils. Of these the hemp, poppy, sunflower, and many nut-bearing trees may be mentioned. Indeed good nut-oil, according to some authorities, possesses the siccative property to a greater extent than any other.

The fixed vegetable oils are either cold or hot expressed. The former are the best oils, but the latter are much used, as a better yield can be obtained by the use of heat, and consequently they are cheaper; while if too high a degree of heat is not used, their quality is not very seriously impaired.

In extracting these oils, the seeds are ground under heavy stone rollers, revolving upon an axis which passes through an upright shaft. As the outside of the rollers must travel faster than the sides nearer the upright shaft,

a rubbing as well as crushing effect is obtained. The meal thus produced is subjected to enormous pressure, and the oil is squeezed out. This is the raw oil of commerce. The siccative property of this oil, as of all other drying oils, depends upon the effects of oxygen upon it. When exposed to the air, it absorbs oxygen and becomes resinous in its character. This is drying in one sense, but not, as is often supposed, drying by evaporation. The latter takes place when any substance parts with its liquid portions, or that which holds its solid ingredients in solution. Oils, on the contrary, dry by absorbing oxygen and combining with it to form resinous substances nearly allied to the well-known resin obtained from pine. Cold solidifies linseed oil, and most other drying oils. They therefore spread better in a warm temperature. The siccative property of linseed oil is increased by heating it with litharge. It was formerly thought that the increased drying property of linseed oil, when heated with litharge, depended solely upon its combination with the oxygen contained in that substance, and it would dry quicker when exposed to atmospheric action. But, according to Liebeg, the principal use of the lead oxide is to precipitate the mucilaginous and albuminous matters contained in oils, which, when present, interfere with the action of oxygen.

Linseed oil is used not only in painting, but in the manufacture of printers' ink, varnishes, oilcloths, etc. When adulterated with fish oil, the presence of the latter may be detected by rubbing a small quantity in the palm of the hand; the smell of the fish oil can then be detected. It is also used in the manufacture of linoleum, which is a combination of the oxidized oil with resinous gums and other substances, possessing the appearance and many properties of India rubber. This substance can be vulcanized like rubber, and is applicable to very many purposes in the arts.

Many painters suppose that it is necessary to use "dryers" in paint, as litharge, dissolved usually in linseed oil by the aid of heat. It has, however, been demonstrated by Chevreul, that these substances are not essential to make paint dry. He performed the following experiments:

Four oak strips were painted, each on one side, with a paint composed of white lead and linseed oil, and on the other side with a paint composed of white zinc and linseed oil. The strip No. 1 was exposed to the air to dry; No. 2 was put into a bottle of the capacity of two liters (3.52 pints) and closed; No. 3 was put into a similar bottle, containing dry oxygen gas; No. 4 was put into a similar bottle, containing dry carbonic acid gas. The results as to drying were examined after twenty-four hours, and again after seventy-two hours.

After twenty-four hours the lead paint on No. 1 was almost dry; the zinc paint had set, but was not dry. On No. 2 the lead paint was almost dry; the zinc paint had set, but was not dry. On No. 3 both the lead and the zinc paints were perfectly dry. On No. 4 both paints were still wet and fresh, and had undergone no change.

After seventy-two hours the paints on Nos. 1 and 2 were perfectly dry. The lead paint on No. 4 had almost set, but it had no adhesion to the wood, and could be easily removed by friction; the zinc paint had undergone no change, but stuck to the finger like fresh paint.

These paints contained none of the so-called dryers, yet when they came in contact with free oxygen, they dried perfectly. But while it is thus shown that dryers are not absolutely essential, it is none the less true that their use greatly facilitates the setting and drying of paint, a very desirable thing under many circumstances.

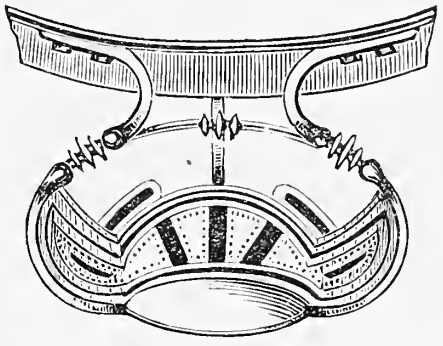
Any admixture of nondrying, or unctuous oils, in the oils used for painting, renders them "tacky" when spread upon any surface. A good test of their presence is, therefore, their behavior in this respect when their layers are exposed to the atmosphere or oxygen in a closed vessel.

It is the affinity which such oils possess for oxygen that renders them liable to take fire spontaneously when spread over the fibers of wool or cotton waste, by the heat resulting from the slow combustion which takes place under such circumstances. Even animal oils similarly treated, are liable to spontaneous combustion.—*Scientific American.*

Trimming Room.

DESIGN FOR CARRIAGE STEP.

This design, from a correspondent, we consider a very pretty thing, and, when well made, must prove very strong and durable, made additionally so by the extra stay at



the backside of the step. The trimming likewise, a pattern of which is shown in the engraving, is deserving of notice.

GENERAL OBSERVATIONS ON TRIMMING.

In writing an article on trimming, it is impossible to give directions, where these can only be acquired by practice, judgment, and good taste, more particularly on what we class as heavy work. There are so many sizes and variations that every one of them require a little deviation in working to suit that particular style of carriage. There are many men that will trim a heavy coach, a small coupe, a landau, or a clarence, all in the same style, without any regard as to the shape, size, and appearance, and thereby spoil the whole design. All trimmers know that most draughtsman have but very little regard to the inside of a body for the convenience of lining, and it is of no use to say any thing about it; but they are left to use their best judgment in overcoming the projecting ends of rockers and rocker-plates, long bolts, and many other things that seem like impossibilities when he commences his job, and finish in decent shape, for which he gets but very little credit when done. This will all change in time, for bosses are beginning to learn that finish in trimming is of some consequence.

In conversing with some builders, located out of the city, they claim that they could compete with city-made

work if they could get their trimming done as neatly, which they can certainly do should they be willing to pay for it. I have lately seen some small coupes on Broadway, with lining in them heavy enough for a close coach, which makes them look crowded and dumpy. Another great mistake is, in putting some new style of trimming in all carriages without any regard to its adaptation or fitness, either for the goods used in lining, or the size of the job. For instance, by making up a satin lining in squares, you loose that nice, rich shade it will have, if made in diamonds of about three and a half inches wide by six in length. Don't be too particular about working up the ends of the points in satin goods, as a little falling in helps to throw out the shade and luster. In using cloth, squares not only look the best but work much easier. I have noticed lately several jobs where wooden frames have been used in place of dickey-seat cushions, covered with cloth. I don't object to the cloth, for that will help the trade if people will buy them, for they will soon want renewing. As for the frames, I inquired of an English coachman how he liked them, he says, "Not at all; I haven't used it above a fortnight, and now it is all caved in; there is nothing loike leather."

Editor's Work-bench.

THE TRIALS OF BUSINESS LIFE.

All men in business life have more or less ups and downs in the voyage, but we have sometimes thought that carriage-builders have had to encounter more than their proportionate share of perplexities. The poor fellow cannot, like the cabinet-maker, rely upon glue to cover up and remedy defective framings; nor, like the carpenter, trust to wedges to hide his faulty joints, but must depend upon careful workmanship, seconded by the choicest kinds of timber, if he would entertain the least hope of ever getting even a passable reputation for making good work. Then, in addition to good workmanship and timber, this last must be something more than seasoned, or else it will shrink when exposed to the elements; and his iron and steel must be of the best—and this is often poor enough, when submitted to straining, for, when soft it wears, and when hard it breaks; and his paints must be the purest and richest, or else they peel off and fade; and his cloths must be fine, as well as "fast colors," to satisfy, —and what shall we say of his varnish? We cannot say much in favor of some that is sold, especially when it is offered "petter ish good," and so we refrain.

But this is not the whole story, for, after he has done his best to have every thing made just right, and has sold his carriage—may be at a small profit, more often not any—and begins to flatter himself with hopes of success, up drives a customer, his eyes flashing fire, his mouth filled with curses, declaring that he has been cheated, and that the carriage sold him is not worth a straw, which, if not calculated to try the patience, yet seldom fails in startling the poor fellow from his dreamy quietness into serious realities. Well, you ask, what is the matter now? "The matter," re-echoes the maddened customer—"*the matter*, see here's a bolt broke a'ready, which came near costing me my life." And is this all, you cooly inquire. "This all, why I think it is enough to condemn the whole carriage"—and so it is in the minds of more than half of our customers, simply because they will never make reasonable allowance in any cases of this kind.

We see here that a single bolt has fanned a flame, when, perhaps, this same bolt has been bought and paid for, as "the best Philadelphia," by the unfortunate builder, in the hope of having it perfect. And then again an axle breaks—perhaps one of "Saunders Improved," as we once had—before it has run two weeks, and then what an outcry! Should the carriage not yet be paid for, then the prospects of ever being paid at all are painfully lessened. We might go on and lengthen this article beyond endurance, in recounting the trials and perplexities invariably incident to the business of a carriage builder, whose occupation requires a great outlay of money, and gives him but small returns, affording him only the poor paying consolation—that he is contributing to the comforts and pleasures of others.

THE TYRANNY OF LABOR.

In the outcry which unprincipled demagogues have instituted against the tyranny of capitalists, both through the public press and before popular assemblages of workingmen, the fact that labor itself is often tyrannical—when it has the power—seems to have been wholly ignored. This is sometimes illustrated in its action toward employers; but still more frequently against the personal interests of the laborer himself. Let us look at this matter in the light of reason.

Suppose an employee, after having made a bargain with an employer, satisfactory on both sides, goes to work, the first question put to him by his shop-mates will be, "Do you belong to our union?" Should he answer affirmatively, his "card" will be demanded, and he expected to "toe the mark" to the very letter. If no, then he will be told, "We do not allow 'scabs'—non-union men—to work in this shop, and you must pack up and leave immediately, unless you agree to join us the first opportunity." If the new hand has any heart in him, he, in such a case, demurs at such an infringment upon his "vested rights" as a free man of a free country, and immediately looks around for aid. He naturally goes to the foreman for protection; but that worthy, having the fear of his tyrannical *underlings* before his eyes, coolly informs the applicant that this is a matter in which he cannot interfere. As a last resort, the poor fellow consults "the boss;" but he, too, frankly confesses that he is

altogether under the control of his workmen, and so, in the end, he is summarily driven away—to starve, if need be!

Now, can this be called a land of freedom, when irresponsible men are suffered to have their own way, and drive a poor laborer away from his work-bench, unless he fixes the price of his labor so as to conform to prices fixed by a conclave of tyrants? And these oppressors, too, chiefly foreigners ground out of Europe by the heel of despotism, who, coming here, set up as rulers and tyrants over such as are to the manor born. We boast of freedom in thought and speech, why should a man, willing to work rather than starve, be prevented from so doing? Is not such action the worst kind of tyranny, against which man's entire nature protests?

With such illustrations of "labor reform" before our eyes, it is cheering to find that occasionally these *bad masters* are checkmated. We offer a case in point. Some weeks since the operatives in the shops along the line of the Erie Railroad undertook to dictate terms to the managers, and because they were not complied with, struck in a body, and organized themselves into a committee, whose business it was to prevent others willing to fill the places made vacant by their action from going to work, until such time as the railroad directors should succumb to their wishes.

But how did these *tyrannical* directors act in this emergency? Why, they went to work and filled the places of the strikers with "scabs" at once, and left *the machinery* to adjust itself, while the union men amused themselves in "corner groceries" through the day, and then at night finished by pelting the "scabs" with stones on their way home from the workshops in Jersey City. This being done in New Jersey, where law has some power, these offending individuals soon found themselves in jail.

After several weeks lost in regulating capital without success, the strikers had to give in, and were but too glad to ask to be reinstated in the positions originally held, but without success. Finding their own entreaties vain, they next waited on some of the municipal officers, through whose influence they hoped to be more successful. But Mr. Gould, who acted on this occasion for the railroad, still refused to take one of them back, and closed the conference by hinting that the board of directors had under consideration the removal of all the workshops from the city, which would thereby create a monthly loss of about $70,000 to the place.

When it is remembered that the movement of the ship carpenters in New York city, a few years ago, ruined the trade there entirely, and drove it elsewhere, we think the most skeptical must concede that combinations, having for their object the inflation of wages above that fixed by the laws of trade, are not only *tyrannical* as applied to individuals, but also when applied to communities.

PUBLISHERS' NOTICES.

Last January we announced a new work in preparation for publication, entitled the "World on Wheels," at the same time calling for names of subscribers, such as wish a copy, that we may add them to our list. We do not ask for money until the work is delivered; nor then, if the book should not please, or prove satisfactory. As we then announced, the subject matter will be the "carriages and customs" of the Egyptians, Persians, Grecians, Romans, Italians, French, English, and American, from ancient times to the present, profusely illustrated with engravings of the vehicles described in chronological order, and interspersed with anecdotes, war proceedings, forms of worship, wedding and funeral ceremonies, &c., all connected with the usages of carriages in ancient times. Since we intend to make this an authentic book of reference, as well as an interesting volume for all classes, especially the carriage-maker, we hope to have the pleasure of still adding to our already respectable number of names as the work progresses. We design to publish it in one handsomely bound royal octavo volume of six or seven hundred pages, printed in the best style of art.

The charts Nos. 5, 6, and 7, offered at a reduction in price—50 cents each—for a few weeks, are selling off finely; but having printed off a large edition of each, we are still able to supply copies to others who may wish to have them. All the charts hitherto published by us, from No. 1 to 5, inclusive, have been sold off long ago. This will account for our inability to supply those correspondents who have sent for them heretofore. Send on your orders, with the cash inclosed—only 50 cents a copy—at once by mail. Only such as have tried the experiment have any idea of the value of such auxiliaries as charts in obtaining orders for new work. The three we have on hand, although the carriages all differ, are each uniform in size, containing about eighty designs for buggies, and other fashionable vehicles of almost every kind. You can find nothing cheaper, better, or more appropriate, as pictures for the office, than these charts. Try them.

In reference to back volumes, we have to say that we can still supply orders for complete sets (eleven volumes)—either bound or in numbers, these last lacking the January number, to complete volume seven—at the prices published in our catalogue, which, having been electrotyped two years since, is now incomplete. This we intend to correct at the close of the present volume, and make more complete. The volumes of this work are *all* of uniform size, which cannot be said of any similar publication of like nature, and the matter possesses an interest not likely to die with the month in which it is published, being not only practical but much of it historically interesting.

GOAT TEAMS FOR THE CHILDREN.

Frequenters of the Central Park, during our unusually summer-like winter, will have noticed the dashing miniature turnout, usually standing at one end or the other of the grand walk running from the lake to a point near the entrance from the Fifth avenue, attended by a fine looking "darkey," in full livery, waiting to receive the patronage of Young America, seconded by the consent and assent of doting mothers, at the charge of fifteen cents *per capita*, for the round trip. This phaeton, although a small affair with three seats carrying six persons —one of which is the dickey seat—is drawn by two trained spotless white goats, decked out with showy harness and ribbons, and is the pioneer of four or five others *to be put on the line* in the spring, when the proprietor expects *to have a run* of custom, and secure "a pile" as the reward of his enterprise. Thus far, although this single phaeton was put on late in the season, we understand the enterprise has fully met the expectations of the projector, notwithstanding the outfit cost about $700.

LITERARY NOTICES.

We are in receipt of *The European Mail*, a weekly publication issued in London, for dispatch by the mail steamer, containing a full and complete summary of home and foreign news for the United States, Canadian Dominion, Newfoundland, Prince Edward Island, Bermuda, Cuba, Honduras, British Columbia, Vancouver Island, and the Sandwich Islands. The contents of the number for January 13, are classed as follows: Accidents, Art and Science, Commercial Summary, Court, Criminal, Emigration, Foreign and Colonial, General Summary, Ireland, Latest Intelligence, Legal, Market Reports, Mercantile, Miscellaneous, Obituary, Political, Prices Current, Religious, Scotland, Shipping, Special Notices, Stocks and Shares, Wales, and Wills and Bequests. From this, the reader will gather some idea of how wide a field of information this publication covers. The weekly numbers amount to 32 pages, including the cover, and sometimes, a literary supplement of 16 pages gratis, as in this instance, is given; the whole for 13s. per annum, exclusive of postage, which to the United States is only 4s. 4d., or in all 17s. 4d. The pages, in type 6 by 10 inches, make a suitable volume for binding, two of which in a year, will make a respectable library of itself, and an invaluable history of passing events in the old world.

EDITORIAL CHIPS AND SHAVINGS.

Milford, Conn., Carriage Factory.—The editor of the Bridgeport *Standard*, says: We spent an hour very pleasantly, on Saturday morning, in visiting the carriage manufactory of Messrs. Beecher & Miles. We were kindly shown through the various apartments and the different styles of works explained to us. We find that notwithstanding the dullness in trade they employ their full force of hands, numbering about forty men. This concern built in the year 1869 about nine hundred vehicles, ranging in price from $100 to $300 each, consisting of pony phaetons, queen phaetons, patent side-seat buggies, family wagons, coal-box and piano buggies, both with end and side-springs. We must make special mention of their patent slide-seat buggy, which, though but a buggy, is capable of carrying four persons with ease. For the above arrangement they drew at the New England Fair a premium and a diploma; also a premium at the last Milford and Orange Agricultural Fair. We noticed the same principal applied to some sleighs they were getting up. We observed that they were using Graham's Patent Iron Seat quite extensively. Beecher & Miles warrant their work and promise to make good in money to the purchasers any defect. They claim to build the best buggy for the money of any concern in the United States.

Baulky Horses.—Various methods have been devised to cure baulky horses. The latest comes from Maine, as follows:—"Let me inform humane men and hostlers, and all who hold the reins, that the way to cure baulky horses is to take them from the carriage and whirl them rapidly round till they are giddy. It requires two men to accomplish this, one at the horse's tail. Don't let him step out. Hold him to the smallest possible circle. One dose will often cure him; two doses are final with the worst horse that ever refused to stir."

Thomson's Road Steamers in Paris.—Within the last few days one of Mr. R. W. Thomson's road steamers, with india-rubber tires, has been running through the streets of Paris, dragging behind it a heavy Versailles omnibus with fifty passengers. On the report of the French Government engineers, leave has been granted to the road steamer to ply over two routes, several miles in length, and including some busy parts of Paris. The engineers report it more handy and manageable than horses, and in no way dangerous to the public. The huge india-rubber tires save the machinery from jolting and the road from ruts. The speed is that of a fast omnibus; it went up the paved street beside the Trocadero, of which the gradients are one in eleven, and even one in nine, without the least difficulty, and come down again without any brake. In a wet grass field it was curious to observe how little the wheels sunk into the saturated soil, in fact, it obliterated, on retracing its circle, the deep ruts of the omnibus wheels. This circumstance has drawn the attention of artillery officers present at the experiment, suggesting to them an inquiry whether the system might not be advantageously applied to military transport in campaigning.

Force of Habit.—A Bengal Drayman urges his way-worn vehicle, with the insufferable screech of a dry axletree rubbing the nave of a still drier wheel, nor can you by any argument prevail upon the listless owner to save his ears, his cattle, or his cart by lubricating with oil. If his forefathers drove a screeching cart and wretched cattle, posterity will not dare to violate the sanctity of the custom by departing from the example. An English engineer, in constructing the bed of a railroad, was impatient at several thousands of men carrying each his little earthen dish of dirt on his head and dumping it down as a contribution toward an embankment. He would introduce wheelbarrows. Whip in hand, he compels their use, and departing makes the condition of the payment of wages that the dirt shall be carried in the wheelbarrows. The next morning on arriving at the spot, he sees that they are verily delivering the dirt in the wheelbarrows, for behold a wheelbarrow filled with dirt which four men are carrying on their shoulders.

Pictures from China.—The streets of a Chinese city are crowded with living beings beyond anything ever imagined till it is seen. They literally swarm with men, dogs, hogs, donkeys, mules, a few horses, an occasional caravan of camels or a drove of sheep, and now and then the procession of a lazy mandarin, carried in a chair. When he appears in sight every thing else must get out of the way. There is also a mode of traveling by means of a *mule litter*, which resembles the shafts and frames of a dray, only there are shafts at both ends, a mule going before and another behind, and carrying a man between them. When the journey is over uneven ground, and the animals do not keep step, this style of traveling affords some of the most peculiar wriggling ever known, and gives rise to nausea, like sea-sickness; we will call it *mule* sickness. Thousands of large, fat Chinamen riding on small donkeys, scarcely larger than first-class Newfoundland dogs, excite your commiseration. The Chinese in Peking have a fashion of riding mules by sitting over the animals hips, the whole body being before. When, as is generally the case with these riders, their feet are thrown forward, they present the appearance to a person in the rear, of a tall Chinaman tapering out into a pair of mule's legs below.

Scrap of American History.—It is related in Smith's "History of New York," published in 1756, that in the year 1693, Gov. Fletcher, with three hundred men, set sail from New York on the 14th of February, and arrived at Schenectady on the 17th. This was considered such extraordinary swift traveling, that the Indian allies gave the governor the name of "Cayenguirago," or "Great Swift Arrow." Mr. Smith says in a note, that the 14th of February was an early day for the Hudson to be open, but adds: "The climate now is so much altered that three hundred recruits sailed from New York for Albany this year (1756), and last year a sloop went up the river, a month earlier." From this it would seem that the present mild winter is by no means a novelty.

Wipe Your Feet.—A gentleman called at a residence in the boulevard Haussmann in Paris. He entered the hall and was going up the stairs, when the solemn porter called him back, saying, "Monsieur has not thoroughly wiped his feet." The gentleman stepped back and wiped his feet until he thought them irreproachable, but he had hardly put his foot on the stair again when the porter remarked with the utmost deference—"Monsieur still has a small spot of dirt on his left heel." The gentleman blushed as he came back, and replied—"It is true; the walking is so bad." "Yes," replied the porter, "it is very bad, and since it is the first time I have had the honor of seeing monsieur, I beg to state that probably he does not know that gentlemen come here only in carriages."

Too Literal.—*Driver:* "Fly, ma'am?" *Old Lady:* "Bless the man, me fly? Why, it's as much as I can do to walk this muddy weather."

SAW DUST.

A young man in Indiana worked all last summer to clear an eighty-acre tract of land belonging to a young woman who had promised to marry him. When, just as the weather began to get cold, he went to claim his reward, she married another fellow who had looked on while the victim was working.

A Wisconsin youth, sued for breach of promise, offered to compromise by marrying the girl, if the court would protect him from those other girls who had the same tender claims upon him.

In the early days, a bride's marriage portion consisted of a feather bed, six chairs, a cherry bureau and table, six cups and saucers, six teaspoons, and a quantity of sand for scouring the floors. Nowadays the groom does not demand the sand even, if the bride's father will only come down with the dust.

An Irish glazier was putting a pane of glass into a window, when a groom, who was standing by, began joking him, telling him to mind and put in plenty of putty. The Irishman bore the banter for some time, but at last silenced his tormentor by, "Arrah, now, be off wid ye, or else I'll put a pane in yer head without any putty."

A lady went into a dry goods store in a New England town, and inquired for "bleached cloth." Several pieces of sheeting were shown her for inspection, but failed to suit. "Perhaps," said the lady, "if I should tell you what I want it for, you would know what to give me. It is to be used for *reposing robes*." The man fainted.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, Feb. 20, 1870.

Apron hooks and rings, per gross, $1 *a* $1.50.
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 7½ c.
Axles, plain taper, 1 in. and under, $5.00; 1⅛, $6.00; 1¼, $7.00; 1⅜, $9.00; 1½, $10.00.
Do. Swelled taper, 1 in. and under, $6.50; 1⅛, $7.00; 1¼, $8.00; 1⅜, $10.00; 1½, $13.00.
Do. Half pat., 1 in. $9; 1⅛, $10; 1¼, $12; 1⅜, $15.00; 1½, $18.00.
Do. do. Homogeneous steel, ⅝ in., $10.00; ¾, $10; ⅞, $11.00; long drafts, $2.50 extra.

☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.

Bands, plated rim, 3 in., $1.75; 3 in., $2; larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Bolts, Philadelphia, list. 35 off.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 16 *a* 20c.
Burlap, per yard, 10 *a* 12c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, $1.75 *a* $2; velvet, $2.50 *a* $4; oil-cloth, 40 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $1.50, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $15 *a* $22.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.75 *a* $2.
Enameled cloth, muslin, 5-4, 35c.; 6-4, 60c.
Enameled Drills, 45 in., 50c.; 5-4, 40c.
Do. Ducks, 50 in., 70c.; 54, 60c.; 64, 80c.

☞ No quotations for other enameled goods.

Felloe plates, wrought, per lb., all sizes, 15 to 18c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.25 *a* $2.00.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.

☞ For a buggy-top two pieces are required, and sometimes three.

Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $1.75.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach, $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 23c.; railing do. 20c.; soft dash, No. 1, 14c.; do., No. 2, 10c.; hard dash, 15c.; split do., 15c.; No. 1, top, 23c.; enameled top, No. 1, 23c., do., No. 2, 20c.; enameled trimming, 20c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 12c.; ⅜, 13c. *a* 16c.; ½, lead, door, per piece, 30c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates. (See Advertisement.)
Oils, boiled, per gal., $1.20.
Paints. White lead, extra, $13.00, pure, $14.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $6 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Sand-paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's, 40 per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 13c.; bright, 15c.; English (tempered), 18c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.

☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.

Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.

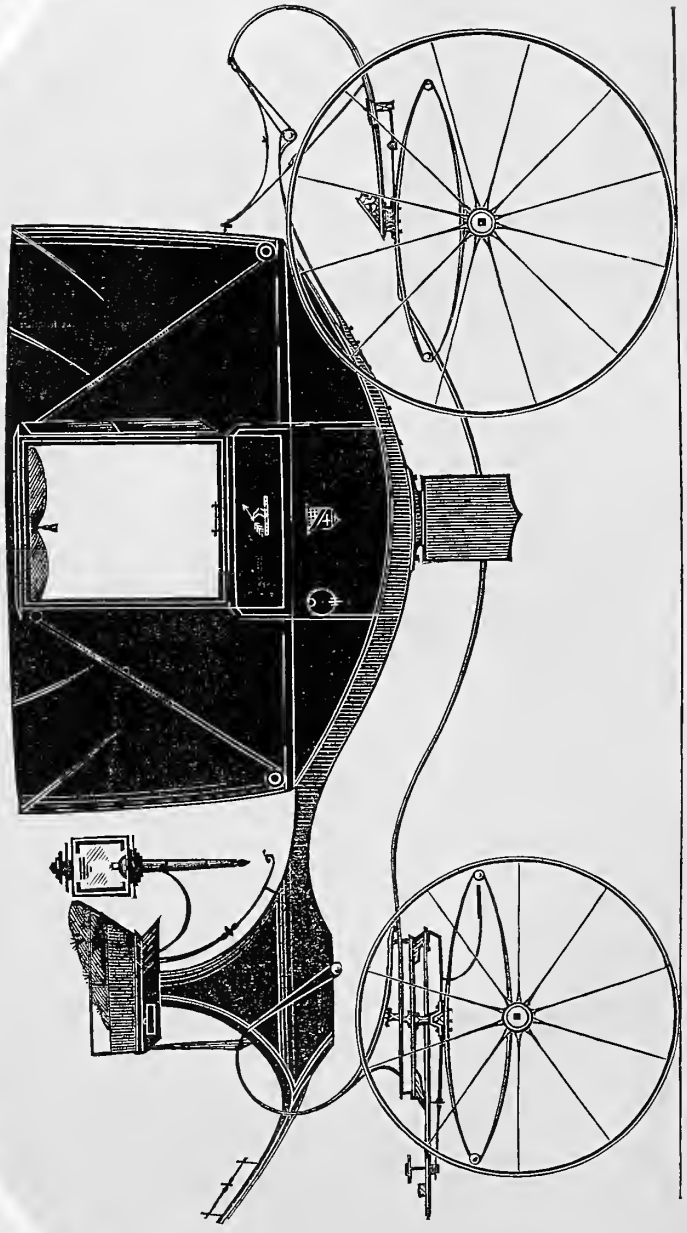
☞ For extra hickory the charges are 10c. *a* 12½c. each.

Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 12c.; 1-4 x 1, 12c.; 3-16 x 1 1-8, 13c.; 3-16 x 1, 13c.; 3-16 x 7-8, 14c.; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close-plated nuts and rivets, 75*a*80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2. Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 50c.
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.00; nonpareil, $5.25.
Do. English, $6.25 to $7.50 in gold, or equivalent in currency.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.

TO READERS AND CORRESPONDENTS.

N. S., OF MASS.—New volumes always begin with the number published in June. We prefer having subscribers begin then—we furnishing the back numbers—but, to accommodate, we sometimes let them commence with the month to suit themselves. Should you choose, you could get the Magazine monthly through your newsdealer at 50 cents a number.

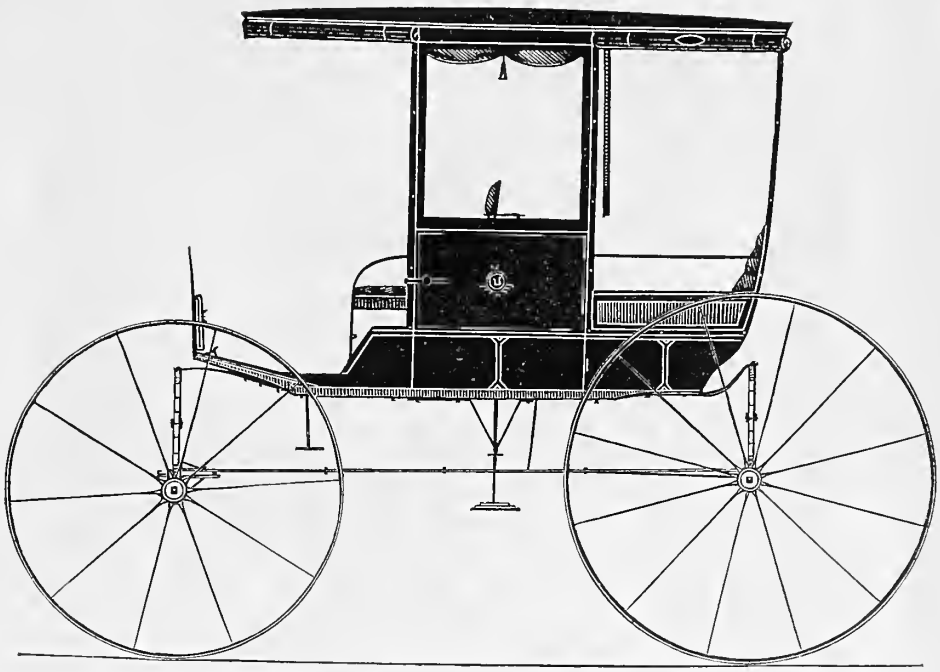
R. J., OF DEL.—No, sir, you are mistaken. We never recommended boiling hubs to make spokes hold, and nobody else would, did he understand his business.



LANDAU.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

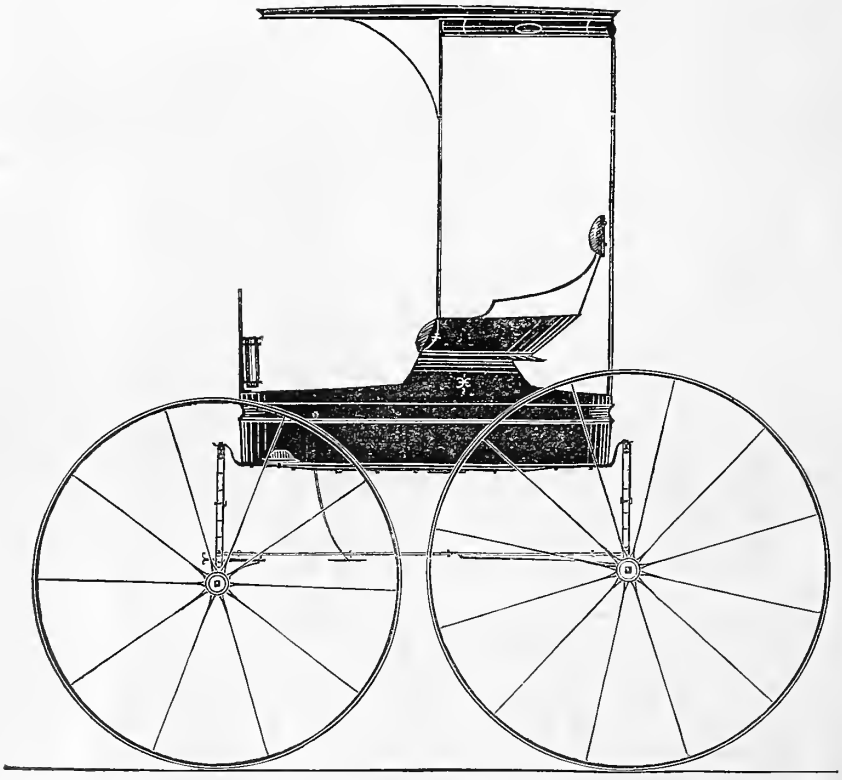
Explained on page 168.



ROCKAWAY, WITH TURN-OVER SEAT.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

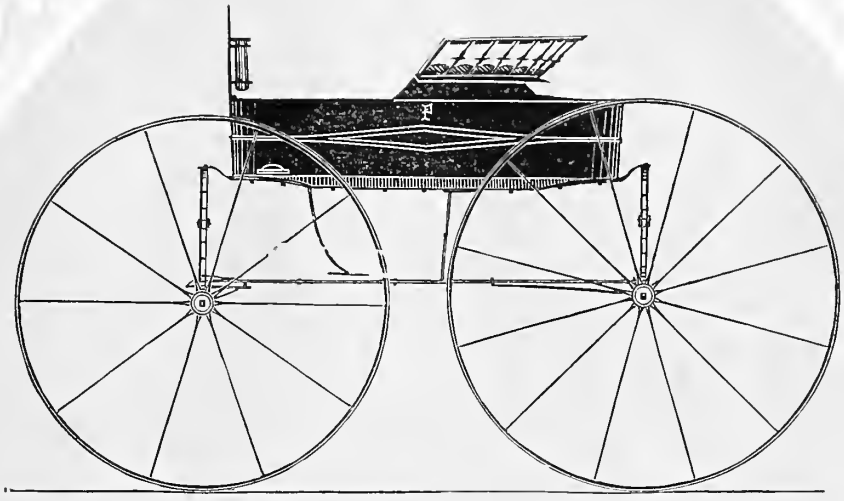
Explained on page 169.



STANDING-TOP PIANO-BOX BUGGY. —½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

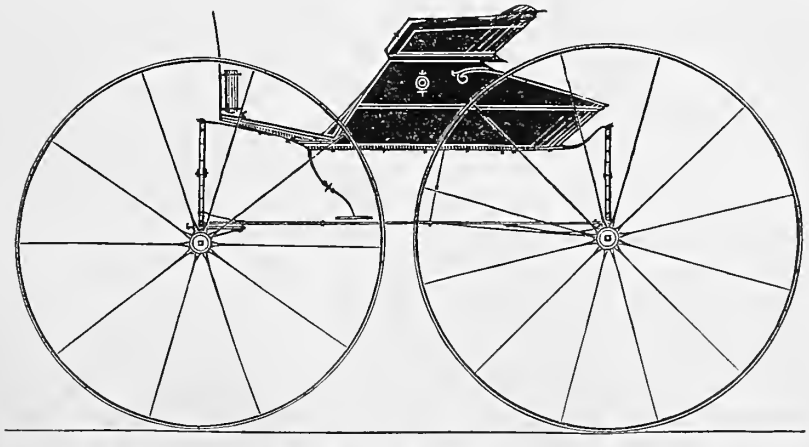
Explained on page 169.



PIANO-BOX ROAD BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 169.



COAL-BOX ROAD BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 169.

THE NEW YORK
CARRIAGE-MAKER'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XI. NEW YORK, APRIL, 1870. No. 11.

Mechanical Literature.

TREATISE ON THE WOOD-WORK OF CARRIAGES.

(*Continued from page* 149.)

Having the two projections ($l\ u\ o$, $l'\ O'$) above the molding of the rounding, on plans P and Q, there will be no difficulty in constructing the projection of this molding on plan R. The two extremities l_1 and o_1 of its farthest extension having already been marked down on this plan, it is sufficient to construct the projection of an intermediate point, so as to allow the tracing of the whole line.

We take this intermediate point in the middle of the angle formed by the line, and this angle being perceivably projected in all its extensions on plan P, we find the position of the point at u on this plan; then carry through projection u a perpendicular to X Y, prolonged on the vertical plan to reach u' on line $l'\ O'$; this point u is the projection of the desired point on plan Q. Carrying next through this newly obtained projection a horizontal line, $u'\ u_1$, we note on it the distance $u_0\ u$ of plan P, commencing from Y' Y to u_1; this last point is the projection sought. Joining l_1, u_1, o_1, line l_1, u_1, o_1 we obtain on plan R the extreme circuit of the rounding. Finally, we draw this line parallel to the first, projecting its height, as found on plan Q.

The lines of plans, P, Q, and R, give the projections of all points of the body, from below, the side and behind; and there is not a single point of any projecting part of the body, the exact position of which could not be ascertained in the manner we have shown with point (u, u', u_1), line O' K' on the vertical plan, and line $l_1\ J_1$ on the anxiliary plan, give us, also, the appearance of the circuit of the round seat on these two plans.

In practicing, it is not necessary to find out for a phaeton body all the projections of different points on the horizontal and auxiliary plans, as we have done here. All that is necessary are projections $l\ u\ o$, $j\ v\ k$, of the round seat of plan P, and $l_1\ j_1$ $t_1\ b_1\ c_1$ of plan R. But as our foregoing explanations, from No. 38 to No. 62, were intended to give a full treatise of the body, it was required to demonstrate on every plan of projection all points visible to the eye, together with their construction.

LXIII. As we have now represented on Fig. 47 all the projecting points formed by the intersection of a phaeton body in perspective, as given on Fig. 28, we can easily explain the rules for, and the mode of, proceeding in the system of projections for designating a point, a line, or a surface, of which manner we have already given an abstract in Art. LX.

Let us consider any point of the body; for example, point B, situated at the solid angle of the three sides, L, M, N, of Fig. 28 (page 82). Here point B indicates perfectly the solid angle required, and there can be no mistake for another point, the figure being perspective. But in the three plans of Fig. 47 there is no point, taken singly, which indicates the same angle. In order to determine this point, it requires two plans of projection, which give two separate and distinct positions of the same point. Accorded that point, b_1 is one of the projections of this point on the vertical plan; we further find that this point b' indicates on this plan the exterior intersection of the top and hind side of the body, such as shown by plans P and R at $b_0\ b$ and $j''\ b_1$; consequently all the points making out this line will project on the vertical plan at b', which latter point for itself determines no certain point. But adding now to the vertical projection b the horizontal projection b, the proposed point is perfectly stated; in fact, distance $b_0\ b$ of the vertical plan in the horizontal projection, gives the distance of the point in the middle of the body; the same the height $b_0\ b'$ of the horizontal plan, in vertical projection, gives the elevation of the point on top of box on the horizontal plan. Or, in other words, the point sought is at the intersection of two parallels, run on each plan P and Q through projections b and b' (Art. 45); the first, even to $b_0\ b$, the other, to $b_0\ b$; and, therefore, there are more than two perpendiculars found on the plan at point B of Fig. 28, determined perfectly on Fig. 47, by its two projections, b and b'. That is why it is expressed on those plans by notation ($b\ b'$), or ($b\ b_1$), if we want to express the point on the plans Q and R.

We remark here, that the projections of any point ($b\ b'$) to be determined, are always connected by a straight line ($b\ b_0\ b$), perpendicular to the common intersection, X Y, of the two plans of projection.

The same mode is applicable to a line as well as to a point; for example, the outside line, B C of Fig. 28. Here the intersection of the sides, L and N, is not stated

by the vertical projection $b' c'$, Fig. 47. In fact, this line (B C) projects on the vertical plan as the whole hind side of the body, so that any line at all which we would draw on this side would follow the projection of $b' c'$; or, in other words, no settled projection. When we now add to the projection $b' c'$, of the vertical plan, the projections $b\ c$ and $b_1\ c_1$ of plans P and R, the course of line B C of Fig. 28 will be perfectly given on Fig 47. On the two plans, P and Q, this is marked by $b\ c$, $b' c'$, and on plan Q and R by $b' c'$, $b_1\ c_1$.

The same demonstrations are also applicable to any surface. Surface L of Fig. 28 is not fully laid out on Fig. 47, by the vertical projection $a' b' c' d'$; in fact, the contents of this figure, taken singly, express on the plan the projection of the whole space of the box. But adding to the vertical projection, $a' b' c' d'$, another projection, either of the horizontal plan $a\ b\ c\ d$, or of the auxiliary plan $b_1\ c_1$, we obtain surface L of Fig. 28 perfectly determined on our Fig. 47. This is given on the two plans, P and Q, by the letters $a\ b\ c\ d$, $a' b' c' d'$, and on plans Q and R by $a' b' c' d'$ and $b_1\ c_1$.

Still, in many positions, a point, a line, or a surface, can be sufficiently determined by one of their projections only. The points, lines, and surfaces, on which we have treated in the foregoing, give us a proof for this in their projection on the horizontal plan, because on this plan the projections are shown in their last state, and cannot serve for finding other projections of the box. Nevertheless, it is always better to put down every projection on two plans, first to avoid confusion, and next so as not to make an exception to the rule.

(*To be continued.*)

GEOMETRICAL EXERCISE.

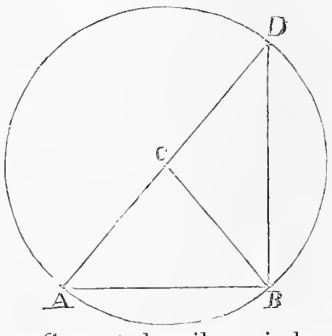
BY P. B. J.

A knowledge of geometry is so essential to the practical coachmaker, that it would seem surprising that so little has been done toward rendering that science a popular study with them. It is scarcely becoming in a writer on the same subject, to censure his predecessors on account of the inadequacy of their works to effect emulation among the artisans of our trade; nor, do I think that preceding writers deserve censure, for their object has not been so much to facilitate the acquisition of a course of problems which may be required in the practice of our particular trade, as to create a spirit of philosophical inquiry, and make a race of speculative geometricians. However, so far as my limited acquaintance with the employments which require the aid of geometrical knowledge qualifies me for the task, I shall gladly contribute to my country's welfare, in the preparation of a few problems for the use of my fellow craftsmen. I had, indeed, some time ago, projected a course, commencing with the first principles of science, and the rudiments of lineal drawing, and had collected a large stock of materials for the purpose of illustration; but, finding a similar undertaking, translated from the French, and feeling assured of the author's extensive learning, as a geometrician, I am satisfied to give the task into other hands. My determination not to trespass upon the rights of the gentleman, however, does not forbid my entering upon geometry, as used in our every day practice.

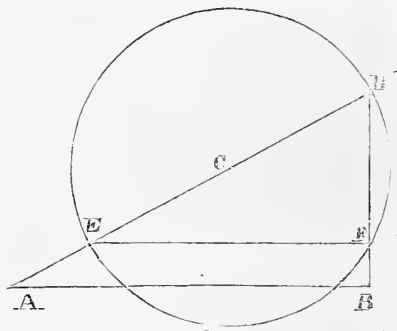
This branch has scarcely been noticed, with any special object in view, except so far as the French or *more properly* the Square Rule, is concerned. I shall therefore (as heretofore, in one or two illustrations) endeavor to place geometry in so familiar a point of view, as to be easily apprehended by those whose minds have not been very long initiated in such pursuits. Such is my aim: how far I succeed is not for me to even guess: all I can say is, that I have intended well.

I shall close the present paper by remarking, that another grand object which will be attained by exercises of this kind, is, that it will enable carriagemakers to read philosophical works with greater ease and pleasure, by giving them some idea of equation.

Our first proposition will be—*From any point in a given line, to draw a line that shall be square to a given line, from any point in that line*—Let A B, be the given line, and B the point from which we wish to draw a line square to it, without the use of the square or mitre level. To begin, draw any line, as B C, from the given point B, making any angle with A B, and center, C; next describe a circle, A B D, cutting A B in A; then through A and C draw a line, until it cuts the circle in the point, D, joining D B; then D B will be perpendicular or square to A B, and drawn from the point B as required. The angle, A B D, is a semicircle, of which A D is the diameter, consequently the angle A B D is a right angle.



Again, *from any point above or below a given line to draw another line which shall be perpendicular or square to it.*—Let A B be a given line, and D a point above it. It is required to draw a line from the point, D, that shall be perpendicular or square to A B. From D, draw any line, as D A, to cut A B; take any distance as D C, on the line A D, and with that as radius, describe a portion of a circle, as E F D, then from E draw E F parallel to A B, and from where E F cuts the circle in F, draw D F B, which will be square or perpendicular to A B, as was required; for the angle, D F E, is a right angle, and as E F is parallel to A B, the angle D B A is equal to the angle D F E, or a right angle. If we had made C D equal to half A D, we should not have had to draw the parallel E F, for the figure to the last problem shows that when C D is equal to C A, the circle will pass through B; but as we have not yet shown the method of bisecting or dividing a line into two equal parts, I will give a method independent of this, in my next, which in many cases in real practice, will be found useful to the workman. Again, if we had taken C D greater than the half of A, the parallel E F



would have been below A B also. It will be remarked, if the given point, D, had been below the line, A B, the operation would have been just the same, only the figure would have been reversed.

THE ADVENTURES OF THREE JOURS.

BY H. S. WILLIAMS.

Chapter X.

The long, hot summer passed rapidly away, and the cool nights of October followed. No frost had yet fallen, and the gardens still presented an abundant supply of vegetation, and the yards a gorgeous array of flowers. Of all seasons, it is the most delightful at the South, for the summer here is as tedious as the long, dreary winter at the North, and one feels a sense of relief that is in itself a great pleasure, when the cool nights give token of an early frost.

It was after midnight, yet Gloner was still sitting by his table, deeply engaged in the middle of a ponderous volume before him. So deeply was he absorbed, in fact, that he failed to hear heavy and rapid footsteps on the stairway, and it was not until the door was quickly opened, and Loring entered the room, that he raised his eyes from the page.

"What has brought you home at this time of night?" he exclaimed, as Loring walked across the room, and tossed his riding gloves and whip on a sofa, then, turning, made the circuit of the room without speaking.

"You are excited, my dear boy; sit down; take a cigar; compose yourself, and tell me what has happened. Has the bonny Kate politely hinted that your visits were no longer agreeable, or, without her saying so, have you seen enough to convince you that there was a more favored Richmond in the field?" and, closing the book, he placed it on the table, when, opening a cigar box, he pushed it across to where Loring had now taken a seat.

"No, I want none!" exclaimed Loring, in a hoarse voice, as he waived away the proffered civility with a motion of the hand. "I am perfectly cool and self-possessed, although I may appear excited—perhaps I was, an hour ago, but the excitement has passed off now."

"Well, do tell me, what is the matter?" said Gloner, lighting his cigar. "You see I am all attention—and impatience."

"A series of the most commonplace circumstances," continued Loring, "has involved me in a most serious difficulty, which is to be settled this morning, at sunrise."

"You don't mean to say you are going to fight a duel?"

"Exactly! this morning, at six o'clock, or before. It is now quarter of one. I have rode ten miles in the last hour and a half, and I've been in town for full fifteen minutes. Of course, you know what I came for?"

"Certainly; but give me the particulars of the affair, as explicitly, and, at the same time, as briefly as possible. You surprised me so suddenly that I am slightly confused, and this is a matter that requires a cool brain to think it over."

"Well, it is at best a brief story. I reached Miss Corneil's last evening—this is morning, now, remember—about eight o'clock, and was somewhat surprised, not to say chagrined, to find three gentlemen already there. One of them was young Ward—you have met him. The two others were strangers to me, but I learned that their names, as they were introduced, were Nelson and Masters. You may not remember hearing them spoken off as old admirers of Miss Corneil's, but I did, as soon as I learned their names. I tried, however, to make myself as agreeable as possible, but I quickly noted that both the last named gentlemen treated me rather coolly, or, rather, with a certain air of contempt, creating the impression that they were far superior to me. But although, as you are well aware, very sensitive on that point, yet, as Miss Corneil showed a decided preference for me, I was very well satisfied. About eleven o'clock we all took our leave, and, as Mr. Ward gave me a cordial invitation to pass the night with him, I assented. We mounted our horses at about the same time, and as our road, part of the way, lay in the same direction, we rode on together. For a time the conversation was commonplace enough, various topics were touched upon and disposed of in a few words, until finally, I made an assertion that Nelson, as I thought, very rudely dissented from. Of course, I replied by presenting reasons and arguments for my views of the subject, which caused him to reply still more rudely. We had now reached a point where our roads separated, and we all halted, while the dispute waxed warmer and more bitter every moment. If the controversy had been confined to its original subject, I do not think any difficulty would have occurred; but somehow Masters brought in Miss Corneil's name. I remember well the words; he mentioned her name, and then, in a sneering tone, added, "She evidently intends to outrival Lucretia Borgia, for Lucretia had only five victims, while Loring is Miss Corneil's sixth." It was both slanderous and insulting—slanderous to her, insulting to me, and it was only from the fact that we were on horseback, that kept me from knocking him down, although it would have probably cost me my life at the same moment, for both of them were armed. I tried to choke down the rage that followed that insult, and, before I could reply, Nelson, with a laugh, replied:

"You are about right, Masters, but, in this last case, it is Loring, here, who is deceiving, for, in order to get in Miss Kate's good graces, he boldly asserts to her that he is of a high and very wealthy family, only stooping to the menial service of a hireling to please the fancy of a passing whim."

That was too much for a Quaker to stand, much less one of my disposition, so, with a full knowledge of the inevitable result, I spurred my horse a step nearer, and standing in my stirrups, I coolly and most emphatically replied:

"Now, Nelson, you are a coward, a slanderer, and a liar—so take that," and I deliberately raised my riding whip, and struck him fairly across the face.

I do not think they expected so decided an action on my part, but, as you well know, there was but one course left for Nelson, according to the rigid and inexorable laws of custom, after such an *insult*, as he would term it, from me. In ten minutes, the challenge was given through Masters, I had accepted, and the arrangements were all made through Ward on my part, who, at my request, acted as your proxy in the matter, for, although I believe he is a friend of mine, yet he is, I fear, too young for such a serious and so responsible a position."

"What are your weapons?"

"Pistols! The distance is to be decided this morning, after we get there. When we separated, Ward insisted on my going home with him, and getting his dueling pistols, which I did, and here they are. I think you will find them in good order. He also gave me some valuable hints, and, by what he said, I am confident they met at Miss Corneil's on purpose to insult me, although I do not think they had any thoughts that it would terminate as it did. They had no idea I would fight, but thought I would take their insults tamely, when they could easily have kept me from the neighborhood, and gained me every person's contempt, by branding me as a coward."

"Is Nelson a good shot, or does not Ward know?"

"I asked him, and he said he might be a *good* shot, but not a *sure* one. I do not think he is any better than I am, if as good. He has passed several years in Paris, and is an expert swordsman, which, I doubt not, he would much prefer to a pistol. But I must write two or three letters and you can busy yourself with those pistols, so don't disturb me for just one hour."

"What arrangements have you made for a physician?" asked Gloner, after the hour had passed and the letters were written.

"Young Ward attends to that. He will be on the ground with one."

Just then the bell rang. "There are our horses. It is now three o'clock. Take a flask of brandy, and put in your pocket. I shall want a drink just before the ceremony, and after, too, if I want any thing."

It was a half hour longer ere they got off, and then they rode slowly and in silence. Just before reaching the ground, Loring gave several directions, and mentioned some things he wanted attended to, in case the worst should happen, and then added, "Every thing else you will find in a letter on the table in our room, directed to you. I do not think you will ever read it, however, for, up to the present time, I have had no serious fears of the result. I am now as cool and self-possessed as I ever was, and I feel none of that depression of spirits which generally forebodes any coming evil with me."

The spot selected for the meeting was most gloriously beautiful. Daylight was just beginning to break as they reached it, and they both stopped to take a survey of the scene. It had formerly been an avenue leading to a fine country residence, but, as they afterward learned, the house had been destroyed by fire some years before, and the grounds had never been improved since. A thick sward of Bermuda grass covered the old carriage road, while, on either side, were huge oaks that linked their long branches above, while here and there were a few scrawling evergreens and rose bushes, that plainly told of neglected years.

"No better place could have been selected for a meeting like this," exclaimed Gloner, who now looked upon it only with an eye to business.

"A splendid place, and, if I can be lucky enough to win the choice of positions, I think we'll come out all right. Ah, here comes Ward and your physician. Let's meet them."

In a few minutes, Nelson, Masters, and their physician also arrived, and Gloner, on being presented to Masters, took him one side to decide the choice of position, distance, and other minor matters. In a few minutes he returned, and exclaimed, in a low tone, "I am in luck, I have the choice of position, and give the word to fire! Here, drink this brandy. Now keep perfectly cool, and fire *quick* at the word. Be in a hurry; I want it all over before sunrise."

Swallowing the stimulant, Loring took the position designated by Gloner, and then, the distance being measured, his antagonist confronted him. The avenue ran nearly east and west, and as the east was now all aglow with light, Gloner's quick eye detected the vast advantage of a light background over a dark one, so he placed Loring to the west, while Nelson was to the east, his whole figure clearly defined.

"Stand with your right side to your opponent. Present the smallest possible surface for a shot; beside, a side shot is not so necessarily fatal as a front one. The one will stand ten chances to glance over the other," and then he added, in a whisper, "At the word 'three,' fire. There's your pistol." Then stepping back, he exclaimed, "Are you all ready?"

"Yes!" replied Masters, "all ready."

What a scene was that for a moralist to muse over! Two young men, who had never met but twice, and this their second meeting—death to death. And then the surroundings were so gloriously and grandly beautiful. The noble old oaks, the rough, rambling hedge-rows between, the scrambling rose bushes, on some of which a few flowers yet bloomed, and then the numerous song birds that warbled their morning hymns from every tree and bush, and then the time, just at the birth of a new day, with countless dew drops sparkling on the grass at their feet, and the air so cool, so sweet, and so refreshing, and yet all to be marred by the shedding of human blood. No wonder that Loring, as he took in this scene—perhaps for the last time—sighed heavily, but then, grasping his pistol, pressed his teeth firmly together, and his nerves became as iron.

"One"—"Two"—"Th—"

Before the word was uttered, Nelson raised his pistol and fired. Loring staggered slightly, but it was only for a moment, then advancing a step, he cried, in a tone of most supreme contempt, "Last night I called you a coward. You have proved its truth, and you would be a murderer. I could now shoot you down like a dog, but I would not have your paltry blood on my hands!" and he sent his bullet into the heart of a small tree to the right, then turning toward his second, he fell to the ground.

"This is most outrageously dishonorable, Mr. Nelson. I thought I was attending gentlemen. Mr. Masters, take him away, and, my advice would be, to revisit Europe!" and Nelson's physician passed him by in scorn, and advanced to where Loring had fallen, where he stood and looked on in respectful silence, while Gloner held Loring's head in his lap, as his doctor, assisted by Ward, examined the wound. The blood, and the hole in the lower part of his vest, told where the ball had gone. "It can't be a really fatal wound!" exclaimed the doctor, as he tore and cut away the clothing, "else he would have fallen immediately, much less taken a step or two, talked a whole breath, and fired his pistol. Ah, ha! just as I thought. Ward, a flask of water and one of brandy, from my saddle bags, and a couple of lemons. The ball has struck pretty well front on the third rib there, and, glancing downward, has ranged just under the skin across the abdomen, and lodged against the left hip; there it is; he'll want to save that; so, Mr. Gloner, just keep it for him. Now we'll bring him to," he added, as Ward handed him the

water, brandy, and lemons, and, in another minute, his patient opened his eyes and breathed quite heavily.

"This brandy, tinctured with lemon, will bring him out all right. You see, it was not the loss of blood that caused him to faint or swoon away, nor the pain alone, but the latter with a very sudden and very deathly sickness. As soon as I can dress this wound, he will be able to stand up."

When the wound was dressed, and after Loring had swallowed half a tumbler of brandy and water, he was able to stand alone, and one of the first to seize his hand was Nelson's physician, who exclaimed, "Your pardon, Mr. Loring, for my consenting to serve your unworthy opponent; but I thought him a gentleman. I was deceived, however. You have my best wishes for your recovery!" And turning, he left them. On looking for Nelson and his second, they had both disappeared.

"Now, Ward," cried the doctor, "go and bring your buggy up. You see," he added, "we kept it hid from view, as I did not want my patient here to think for a moment that there would be any use for it on our side;" and he smiled to think how providently he had conducted his part of the programme.

The buggy soon arrived, a roomy physician's phaeton, in which they assisted Loring, while Ward took a seat beside him. Then the doctor poured out all the brandy in his flask but about half a tumbler full, took a cup of water, and, squeezing a lemon in it, poured the mixture in the flask, and handing it to Loring, said, "If you feel faint, sip this occasionally, it will strengthen you any way. Now, Ward, drive slowly, and pick out the best road. Of course, you will go to Miss Corneil's. She has got to nurse you through this little affair, and you couldn't find a better. Mr. Gloner and myself will ride on more rapidly, so as to prepare her for your arrival. Remember my instructions, now;" and Ward drove slowly off.

"I know a nearer way than round the road," said the doctor, as they mounted their horses, "so we'll beat them half an hour. See, the sun is just rising. By Jove, but this is a lovely scene. Look at that river, the sky, the few brilliant clouds, these trees, and then this atmosphere; one can't take too much of it in his lungs. It is the healthy season now. No malaria in this air, nor will there be until after frost comes to kill vegetation, and then a rain or two to cause them to decay. Poor Nelson! how he feels just about now,—the rascal, I can't help but pity him for all. It will be years before we see him in this neighborhood again, if ever. I never was engaged in a little affair of honor that terminated so pleasantly as this; no one killed, and your friend, Mr. Loring, the accepted lover of my bonny Kate. You see, I have heard of his weakness in that way; and, of course, if he has not already proposed, he will before he leaves her house, and will be accepted, too, even though at this moment she may not care a snap of her finger for him. Like all your real women, Kate worships courage, admires magnanimity, and opens her innermost heart to suffering, especially when she is the cause of that suffering;" and the worthy doctor run on in his rattling way until they entered the Corneil plantation.

"We will enter this gate," he said, turning as he spoke, and passing into an immense field of cotton. "By following these rows we will reach the turning row up yonder, when we will find a good path leading to the house. It will save fifty—yes, seventy-five yards, and distance, you see, is every thing with us physicians; it's what time is with you artisans. By Jove! there she is now; just as I expected, too. See her way up yonder, against the woods. Why, your eyes ought to be better than mine, especially when a young and pretty lady is to be seen. You go up and tell her to come home, and I'll ride on to the house, present my compliments to her aunt, and—order breakfast for three more. This ride has given me a marvelous appetite;" and he was off.

Miss Corneil did not seem to notice Gloner until he had passed over half the distance, when, leaving the hands she was instructing as to their day's work, she advanced to meet him. When near enough to see who it was, Gloner saw her color pass away; then, with a touch of the whip, she bounded to his side, and was the first to speak. "What brings you so early?" she exclaimed, quietly. "Is any thing going to happen?"

"Nothing *is going* to happen, nor nothing has happened to give you the least uneasiness. I was in hopes that you was entirely ignorant of any cause for any thing 'happening,' but I see you anticipated a difficulty;" and Gloner noticed with delight that the color was returning to her cheeks.

"Yes, I dreaded a meeting, and passed a sleepless night for thinking about it. I saw by Mr. Nelson's excitement, and Mr. Masters' cool, sneering tone when they left last night, that they were plotting revenge on Mr. Loring; for, blind as I was, I treated them with coolness during the evening, and Mr. Loring, with, perhaps, a little too much preference. But tell me, what has happened?"

"There was a duel, this morning, at sunrise, a mile below here;" answered Gloner, "the principals being Mr. Loring and Mr. Nelson. The latter fired before the time, and wounded Mr. Loring slightly in the side. Mr. Loring sent his ball in the trunk of a sapling near by, and is now on his way to your house; so come on, and receive him."

During the ride to the house Gloner explained every thing connected with the affair, to which she listened with marked attention, and then said, "Thank God! it was not Masters who challenged him. Nelson, I know, is a coward; but Masters has a nerve of iron, and the heart of a fiend on such an occasion. It was his intention to do the fighting, but by some means Nelson blundered into it by being too hasty; but it was a blessed blunder for—us all." She almost said "we;" and that sentence told that Loring already had possession of her heart.

Reaching the house, they were met on the piazza by her aunt and the doctor, and the latter, coming toward her, seized her hand, and exclaimed: "Ah, you little rascal, you have no idea of the trouble you are to a neighborhood—making two young fools get up before day, to take a pop at one another, and rousing up an old man like me to see if its well done. You little rogue, you. Come, I'm terribly hungry; so go and see about breakfast; then come and make what reparation lies in your power for your wickedness, by nursing your victim. But mind you, now," and his voice changed from raillery to the firm tones of authority—"not a word about love; not one word, for he can't bear the least excitement." Raising the riding whip that she still held in her hand, she gave the worthy doctor a smart cut across the shoulders, and exclaimed: "I wish you to remember that you have a hundred victims to my one, and yours are all dead; while mine are——"

"Only heart-broken and perforated with pistol balls; ah, ha!" and the doctor laughed heartily, as he stepped back a pace or two to escape the whip, which was again raised menacingly.

Just as Loring was safely stowed away on the sofa in the parlor, breakfast was announced. Miss Corneil, of course, remained with the wounded man; but her aunt presided over the table, and a right royal feast they made of it. The doctor was full of his talk. Gloner, assisted by Ward, had to narrate the whole circumstances attending the duel, for the enlightenment of the aunt, and then they discussed the whole matter, and finally wound up by sending a special message to Miss Kate, with the assurance that it was well worth fighting a duel at daylight, just to get such a breakfast as she had served them.

Again examining the wound, and moistening the bandages with cold water, the doctor told Gloner when he reached town, to send out twenty-five or thirty pounds of ice, and promising to drop in toward night, he took his departure.

An hour afterward, Gloner was galloping toward town with a much lighter heart than when he passed over the same road four or five hours before.

(To be concluded in our next.)

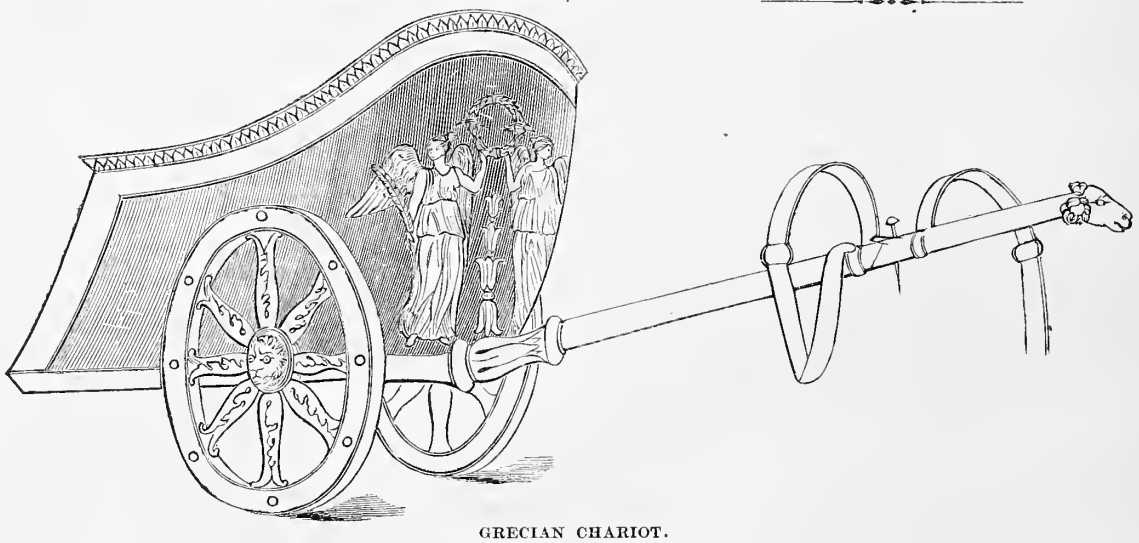
OUR GRECIAN CARRIAGE MUSEUM—VI.

Poets and historians of antiquity have left on record glowing descriptions of the chariot races of Greece and Rome. Even sacred writers have not hesitated to use them figuratively, as illustrations in teaching some of the most sublime and interesting truths in Christian theology. These contests were looked upon as the most noble of an enlightened age of the world, and a victory obtained at one, second only to a victory in the field of battle. We give an illustration of one of the racing chariots of Greece, in connection with this article.

Those selected as charioteers were specially trained to the business, under competent instructors. Historians have named several individuals who have acquired honor and fame, as experts. Plato mentions one Anniceius, a native of Africa, who had acquired great dexterity in driving his steeds harnessed to a chariot. This dark-skinned charioteer, desirous of giving the celebrated philosopher practical proof of his skill, in presence of a great multitude, drove several times around the Academy with such a steady rein, as to have left but one print of his chariot wheels in the circle.

The pages of Homer present us with charming pictures, in which chariots figure. One of the most interesting of these, is that in which Nestor instructs Atilochus in the art of driving. "One man," he tells us, "who is confident in his steeds and chariot, turns imprudently hither and thither over much ground, and his steeds wander through the course, nor does he rein them in. But he, on the contrary, who is acquainted with stratagem, though driving inferior steeds, always looking at the goal, turns it clear, nor does it escape him in what manner he may first turn the course, with his leathern reins; but he holds on steadily, and watches the one who is before him. But I will show thee the goal, easily distinguished, nor shall I escape thy notice. A piece of dry wood, as much as a cubit, stands over the ground, either of oak or larch, which is not rotted by rain."

The chariot which illustrates this article is of an elegant pattern, and is highly ornamented. The winged figures painted on the front, supporting a wreath, or crown of laurel, are splendidly executed and singularly appropriate. The wheels, with eight spokes, peculiarly shaped, and the pole setting into a socket at one end, and terminating in a ram's head at the other, are worthy the study of every lover of art, even in modern times.



GRECIAN CHARIOT.

Incipient Art.—The first invention of man to effect transportation by mechanical means was the Wheel—that is, a disk—held upright by a cross bar called the axletree. Rude carts with two wheels were first constructed; and these simple vehicles were drawn by the animals already tamed, over the rough surface of the ground, which was the primitive road-bed of man. Next, wagons with four wheels were devised, and roads were made by grading the uneven surfaces; then springs were added to diminish the jolt—an invention unknown to the Greeks and Romans; and, lastly, relays of horses and Macadam roads were introduced, marking the higher development attainable under the system that employs horse power and the earth as a road bed.

Home Circle.

A HAPPY HUSBAND.

BY MRS. EVA ROSS.

"For heaven's sake, Emma, do be serious, if you can, for five minutes. Pray, cease this trifling, which is but cruel playing with my feelings, and let us treat this subject as it deserves, soberly and seriously."

"Well, there, then;" cried the laughing, black eyed girl, to whom Henry Gale spoke; "there, then, is that grave enough? See the corners of my mouth turned down, and my eyes rolled up, and I am as sober as a patient who has caught sight of the dentist's instrument. Do I suit you so?"

"You suit me anyhow, and you know it well, you witch!" cried Henry, gazing with a smile at the pretty face puckered up in its affectation of demureness. But he was not to be driven from his point. So he resumed, gravely, after a pause: "That time has come, Emma, when I have a right to demand an explicit answer to my suit. You have trifled with my earnest feelings long enough, and I have grown restless under my fetters."

"Shake them off, then, Henry;" interrupted the saucy girl, with a defiant toss of the head, which plainly said, "I defy you to do it!"

"I cannot, Emma, and you know it;" replied the hapless lover.

"That being the case," said Emma, "take my advice—wear them gracefully, and don't pull and jerk so; it only makes them hurt you."

The young man turned away, and walked up and down the room, evidently fretting and foaming internally. Emma, meantime, looked out of the window, and yawned. Henry continued his moody walk. "O! what a beautiful bird is on that lilac tree," cried Emma, suddenly; "do come and see it." Henry approached the window, and looked out. "Do you think, Henry," said Emma, laying her hand on his arm, and looking up eagerly in his face: "Don't you think you could manage to—"

"What, Emma?" asked Henry, all his tenderness awakened by her manner.

"Drop a pinch of salt on his back," replied the provoking girl, with an affectation of simplicity; "for then, you know, you could easily catch it."

Without answering, he turned angrily away. His walk this time was longer than before, and his cogitations were more earnest; for he did not heed any of Emma's artfully artless devices to allure his notice; but at last, turned about, and said:—"Emma, for three long years I have been your suitor, without either confession of love or promise of marriage on your part. Often as I have demanded to know your sentiments toward me, you have always coquettishly refused me an answer. This state of things must cease. I love you better than my life; but I will no longer be your plaything. To-morrow you are going away, to be absent for months, and if you cannot, this very day, throw aside your coquetry, and give me an honest 'yes' for my answer, I shall consider that I have received a 'no,'—and act accordingly."

"And how would that be, and what would you do?" asked Miss Emma, curiously.

"Begin by tearing your false and worthless image from my heart;" cried Henry, furiously.

"It would be a rash piece of business, Henry; and you would not succeed, either;" said Emma.

"I should, and would succeed;" said Henry; "as you shall see, if you wish; you cruel, heartless girl!"

"But *I* don't wish, Henry dear; I love dearly to have you love me;" said Emma.

"Why, then," cried the generous youth, quite won over again—"why, then, dearest Emma, will you not consent?"

"Remember, I said I liked to be loved;" replied Emma; "I did not say any thing about loving. But pray, how long did you say you had been courting me, in that pretty little speech of yours?"

"Three long years;" replied Henry.

"Neatly and accurately quoted, Henry. But you know my cousin Rachel was only won after eight years' courtship. You don't suppose I am going to rate myself any cheaper than she did, do you? Suppose we drop this tiresome subject for two years. Perhaps by that time I may be able to work myself up to the falling-in-love point. There is no knowing what wonders time may effect."

"If you are not in love now, you never will be;" returned Henry, sturdily; "and *I* will have my answer now or never."

"Never, then;" laughed Emma. But she had gone a step too far. Her often severely tried lover was now too much in earnest to bear her trifling any longer.

"Never be it, then;" he cried; and seizing his hat, he strode from the room.

Emma listened to his receding footsteps with dismay. Had she, indeed, by her incorrigible love of coquetry, lost him? It smote her to the soul to think so. As she heard him open the front door, impelled by a feeling of despair, she raised the window sash, and leaning forward, whispered: "Henry, Henry! you will be at the boat to-morrow to bid me good-bye, wont you? Surely, we are still friends!"

As she spoke, she tore a rose from her bosom, and threw it after him. It lodged on his arm, but he brushed it away as though it had been poison, and passed on without looking up.

Emma spent the remainder of the day in tears. Early the next day the bustle of departure began. Emma was going to accompany her widowed and invalid mother on a trip for her health. As they reached the wharf, and descended from the carriage, Emma's eyes made themselves busy, searching for a wished-for face, but it was nowhere to be seen. The steamboat was panting and puffing, seemingly impatient to be let loose, when Emma's mother, aided by the servant who had accompanied them, was crossing the gangway which lay between the wharf and the boat, and Emma was reluctantly following, when the sound of a voice behind—the very voice she had longed to hear—startled her. She turned to look, and, missing her footing, fell into the water. Another instant, and Henry had thrown off his coat; and calling, loudly, "Tell the captain not to allow the wheel to stir, and to throw me a line;" he sprang into the water. But of her for whom he was risking his life to save, he was unable to perceive a trace. Judging that the current of the river might have carried her a little forward, he swam around the wheel, but still saw her not. Despair had nearly seized his heart as he conjectured that she might be under

the boat; but, straining his eyes to see through the water, he at length discerned, far below the surface, what seemed to be the end of a floating garment, lodged between the wheel and the bottom of the boat.

If this were, indeed, the unfortunate girl, the least movement of the wheel must inevitably strike her; and Henry, in his terror, fancied it was already beginning to turn. Diving, he clutched at the garment, but missed it. He rose panting, and almost exhausted; but scarcely waiting to get breath, he again plunged below the surface. This time his efforts were rewarded by success, at least so far that he was able to bring Emma's form to the surface of the water; but she seemed totally lifeless. Henry was now so nearly exhausted that he had only sufficient presence of mind left to clasp Emma convulsively, while he kept himself afloat by holding on to the wheel. But this, his last hope of support, seemed also to fail him soon, as he perceived that it was now really beginning to turn slowly around. By a desperate effort, he struck his foot against one of the paddles, so as to push himself off as far from danger as possible. As he did so something touched his head, and his hand grasped a rope. New life seemed now infused into him, and summoning all his energies, he fastened the rope around Emma's waist, after which consciousness entirely forsook him. In the mean time, the witnesses of the scene, after giving Henry's instruction to the captain, had watched his struggles and exertions with breathless interest. The friendly rope had been flung to him again and again; but in the excitement of his feelings, and his semi-insensibility, he was incapable of availing himself of the proffered aid. At last, perceiving that he was quite exhausted, and must inevitably soon let go his hold on the wheel, and then probably sink to rise no more, the captain ordered the small boat to the rescue, and the result of this experiment was successful. Emma was raised from the water by means of a rope, and the boat reached Henry in time to save him also. Both sufferers were then taken on board the steamboat, which now moved off to make up for lost time.

And thus, when our hero regained his consciousness, he found himself miles from home. Of course, his first anxious inquiry was for Emma, and when informed that she was rapidly recovering, his happiness seemed complete.

About sunset of the same day a message came to him that Miss A—— desired to see him. Answering the summons, he found her lying on a sofa in the captain's state-room, which had been considerately given up to her. Her mother was sitting beside her, who looked very pale, and somewhat suffering; but she held out her hand to Henry very gracefully, while the tears stood in her eyes.

"Henry," she said, without offering a word of thanks, "I want to see a clergyman. Is there a clergyman on board the boat?"

"I will go and see," said Henry, moving to the door; but a dreadful thought entered his mind, as he turned, exclaiming, "Emma, you don't think that ——"

"That I am going to die? No, Henry; but I want to see a clergyman."

Henry went, and soon returned accompanied by a minister.

"I thank you, sir, for coming to me," said she to the latter, as he entered; "I have a strange request to make of you. Would you object, sir, in the presence, and with the consent of my mother, to unite me to this gentleman in matrimony?"

If the minister was astonished at this request, Henry was still more so. "What did you say, Emma?" said he. "Did I hear aright?"

"I believe so," said Emma, smiling at his eager amazement. "Does the scheme meet your approval?"

"It was heaven inspired," cried the poor fellow, frantic with joy; but a shade coming over his face, he added gravely, "but, Emma, have you considered? Remember, I want your love, not your gratitude. I will be satisfied with nothing less."

"Do not be concerned about that, dear Henry," replied Emma, gazing at him very tenderly through her tears. "You had that first, long, long before you had the last."

"But, Emma, you said only yesterday ——"

"Never mind what I said yesterday," interrupted Emma, with some of her old spirit breaking out. "*Just mind what I say to-day.* If I was a fool once, is that any reason I must be one always?"

"But, indeed, Henry," she added more softly, "I have always meant to be your wife. The only scruple I have is, that I am not half good enough for you."

It is needless to say how the discussion ended, for the reader has already divined that.

Henry continued his journey; and thus, in the course of one eventful day, he risked his life, saved that of another, and set out on an unexpected wedding tour, a happy man!

Pen Illustrations of the Drafts.

LANDAU.

Illustrated on Plate XLI.

Landaus, very common in Europe where they originated—some say, at a town of the name in Germany—are becoming very popular with the aristocracy of this country, which term includes all those of sufficient wealth to enable them to support such an "institution." Wishing to render all the aid in our power, tending to the development of art, we this month furnish our readers with an original drawing, in which we have endeavored to include all the latest improvements both in design and fashion. The manner in which the body is suspended, renders the vehicle one of the most easy riding ever made. The width of the body across the seat should be about 50 inches in the clear; axles, $1\frac{3}{8}$ inches; wheels, 3 feet 5 inches and 4 feet 1 inch; hubs, $4\frac{1}{2}$ by 7 inches; spokes, $1\frac{1}{8}$ inches; rims, $1\frac{1}{4}$ inches deep; tires, $\frac{3}{8}$ by $1\frac{1}{8}$ inches.

Painting.—English patent black ground work, the under-carriage striped with a three-eighths inch line in blue, over which, near the edge, put two narrow lines in white.

Trimming.—Since this carriage is often open, exposing the linings to the action of the atmosphere, care should be taken to have the linings fast colors, for nothing injures

the reputation of a builder more than to have his cloths fade. Simply remarking, that as nearly all the fancy colors possess this failing, such should be used with caution, we leave the builder to exercise his own judgment in selecting his material for *inside* linings.

Workman's price for building the body, from $150 to $160; for carriage part, $22; for ironing, with seat-leg, book steps, and French clips, $110; for painting, $72; for trimming, including all the leather work, $85. Manufacturer's charge to a customer is from $1,800 to $2,000, according to finish. Our charges for working drawings, full size, on wall paper, will be—for the body, $15; for the carriage part (including wheels), springs, &c., $15 more, or $30 for all. Orders to be accompanied with the cash, and plans to be mailed within eight days after the order is given.

New York Charges for Repairs.— *Wood-work:* Hub, $5; new spoke, $1; rimming wheels, $20; half rim, $2.50; drafting wheels, $1; furchell bed, $10; bolster, $8; back spring bar, carved, $9; furchells, or horn bars, $8; fifth-wheel bed, $2.50; splinter bar, $3; perch, $20; pole, $10. *Iron-work:* New iron tires and bolts, $38; resetting tires, $9; tire-bolts, each, 30 cents; carriage-bolts, each, 50 cents; resetting axles, $10; oiling and washering axles, $2. *Trimming:* New leather top (both heads), $175; new head lining, both heads of silk goods, $175. *Painting:* Burning off old paint and repainting, $185. *Plating:* Recapping axle-nuts, $6; hub bands, silver, $8; door handles, $10 to $12.

ROCKAWAY WITH TURN-OVER SEAT.

Illustrated on Plate XLII.

This light one-horse rockaway, the seat to turn over, with high paneled doors, is nicely calculated for a family carriage. Width of body, 48 inches; wheels, 3 feet 6 inches, and 3 feet 11 inches high; hubs, 4 by 7 inches; spokes, $1\frac{1}{8}$ inches; rims, $1\frac{1}{4}$ inches; tires, $\frac{5}{16}$ by $1\frac{1}{8}$ inches.

Painting.—Body, black; carriage part, brown, striped with black in broad stripe, with two narrow ones red.

Trimmings.—Blue-black cloth.

Workman's charge for building body, $62; manufacturer's charges for the carriage, nicely finished, $700.

New York Charges for Repairing.—*Iron-work:* New tires and bolts, $26; drafting, $1; resetting, $7; tire bolts, 25 cents each; carriage bolts, 30 cents. *Wood-work:* Hub, $5; spoke, 75 cents; rims, $18; axle bed, $3.50; perch, $5; spring bars, each, $2; shafts, each, $4; shaft bar, $1.75; head block, $3; new set of wheels, complete, $75. *Trimming:* Retrimming shafts, $4.25; covering glass frames, $4; leather washers, $1.25. *Painting:* Burning off old paint, and repainting and striping, $95; coloring and varnishing body and carriage part, striping, &c., $75.

STANDING-TOP PIANO-BOX BUGGY.

Illustrated on Plate XLIII.

We have on this plate a very unique and original design for a depot wagon. The moulding extending around the body is concave, as shown at both ends, and should be painted in some color differing from the other portions of the side panel. Wheels, 3 feet 11 inches and 4 feet 2 inches high; hubs, $3\frac{1}{2}$ inches; spokes, 1 inch; rims, $1\frac{1}{4}$ inches; tires (steel), $\frac{1}{4}$ by $\frac{7}{8}$ inch.

Workman's price for building body, including the wood-work of top, $25; carriage part, $8; wheels, $10; shafts, $3.50; spring bars (plain), $2. Manufacturer's price for buggy about $100.

New York Charges for Repairing.— *Wood-work:* New wheels, $18 (tirings not included); hub, $5; spokes, 75 cents each; rimming, $16; axle bed, $4 each; perch, $6; head block, $3; spring bars, each, $2; shaft bars, $2; new shaft, $4. *Iron-work:* Resetting tires, $8; new set of tires, including the tire bolts, $20; drafting the wheels, $1; carriage bolts, 50 cents each; resetting axles, $6; new fifth wheel, $5; new spring, 15. *Trimming:* Leathering shafts, $7; seat linings, &c., $35; whip socket and fastenings, $3; covering dash, $10. *Painting:* Repainting, $70; touching up and varnishing, $35.

PIANO-BOX ROAD BUGGY.

Illustrated on Plate XLIV.

In this design, the only points which differ from the last are the seat and side molding. The former molding sinks; this is raised and rounded, as shown on the side panel. Width on seat, 36 inches; wheels, 3 feet 11 inches and 4 feet 1 inch; hubs, $3\frac{1}{4}$ inches; spokes, $\frac{7}{8}$ inch; rims, 1 inch; tires (steel), $\frac{3}{16}$ by $\frac{7}{8}$ inch.

Workman's price for making body, $17; carriage part, $8; shafts, $3.50; wheels, $10; spring bars, plain, $2. Manufacturer's price for finished buggy, $325.

Repairing.—Same prices as for the piano-box.

COAL BOX ROAD BUGGY.

Illustrated on Plate XLIV.

A very pretty buggy, we imagine we hear a great many say, and original, too, in many respects. The sham pillars, as well as the moldings, should all of them be raised and wooden; set off, when painted, with a different shade of color from that used in painting the panel.

The prices for making the different parts, for the repairs, and for the finished carriage, are about the same as for those mentioned in describing the other, published on this plate.

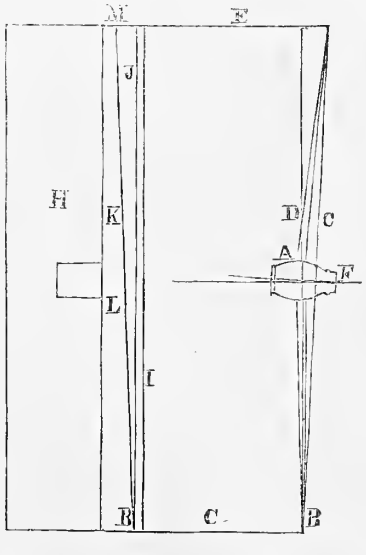
Sparks from the Anvil.

THE CORRECT LENGTH OF AXLES AND AXLE BEDS.

(*Concluded from page* 154.)

Again we return to wheels and axles. I will give my plan for getting the proper length of axles, which I have used since I first took any interest in the business, and which was my first object to obtain—the exact and proper length of axle beds. There is such a variety of axles nowadays, that I am obliged to resort to my plan, in order to get up the carriages which I build correctly. We all know that the object aimed at, by practical carriage-makers, is to have their carriages noted for easy running; and to do this, they must make each part bear its proportion of the weight. It is very essential that the tire should present a level surface with the grade of the road; and to attain this object, you must pay strict attention to the length of axles, without which it will be merely guess work.

My plan is this. I first find the dish of each wheel, measuring from the back end of each hub, to a straight edge across the face of the wheel. The difference in the dish of each wheel must be particularly noticed, and calculated upon, in the length of the axle, by deducting the number of inches and fractional parts of an inch from the width of the track, measured from outside to outside of the tire. I then *add one-half of the swing*, which I intend to give the wheels, to the measure, and we have the correct length of the axle between the shoulders. Perhaps it will be as well for me to explain just here, how I ascertain the correct swing to be given the wheel. Without being considered egotistical, I must claim to myself the credit of reducing this very simple problem to a practical conclusion. Heretofore the rule prevalent has been on the *guess* plan. Where a wheel dished much, the swing was five and six inches. For those not so much dished, three and four inches. As shown in the engraving, I measure from the face of the wheel to the center of two spokes at the hub, as at point A, which gives the starting point; next, measure to the center of the spoke B, which measurement deduct from the measurement at A, and the remainder carried out on line D, from point B (the center of spoke at felloe), to height of wheel at E, will give us the half of the swing intended. As I said above, add this half of the swing—*after deducting* the dish of the wheels—and we have the correct length of the axle or axle bed. In all cases, observe that your tire stands horizontal, or square, with base line C, and each wheel in range with the other also, at point F. By squaring from line G and D, we have the proper set of the axle arm, with a parallel spoke on the under side of the wheel.



As it is a difficult matter to show the variations of one-sixteenth of an inch on the scale, I can make the engraving and plan more fully understood, perhaps, by figures. Suppose we wish our carriage to track 4 feet 8 inches, outside to outside, the dish of one wheel measuring from the back end of hub to a straight edge on the face of the wheel, is $4\frac{1}{4}$ inches; the other is $4\frac{3}{8}$ inches, which together make $8\frac{7}{8}$ inches, which we deduct from 56 inches, leaving $47\frac{1}{8}$ inches. We now measure for the swing, as above, which we find to be $2\frac{1}{8}$ inches, which, added to $47\frac{1}{8}$ inches, makes the length of the axle or axle bed $49\frac{1}{4}$ inches between shoulders. In order to get the proper swing of my wheels, I have a straight edge, as shown in H, striking a $\frac{5}{8}$ mark from the edge I, as at J, I have the center of an inch spoke, as at B. The remainder of what is left at A, I place at point L; and drawing line K at point M, I have the swing. I then place the length of hub on at point N, and square from line K and L, which gives the pitch of the axle. I have been more prolix in the explanation of the diagram than I should have been, did I not wish it distinctly understood, which is my excuse for the length of this article.

Paint Room.

HINTS TO CARRIAGE PAINTERS.

It not unfrequently happens, after a piece of work has had its second and third coats of varnish, and looked well at night, that the next morning the surface exhibits a dullness utterly at variance with the expectation it had previously so rationally excited. Conjectures are made upon the cause, and the conclusion generally settles it upon the inferior quality of the varnish. A little inquiry may correct this impression, for which purpose we may trace the work from the commencement. The workman, having finished cleaning off his panels, is impatient to have them colored as quickly as possible, which is done. These panels have been fixed to their places through the agency of fire and water. The grain of the wood, having suffered this disturbance of drying on one side, and imbibing water on the other, is immediately covered over with a succession of fluid paint, in which turpentine forms the component element; four coats of primary colors, thin and transparent; four coats of filling-up stuff, the composition of which are absorbents of the strongest character—litharge, ochre, and dry white lead. Water is again applied most amply in rubbing down; and when to all appearance dry, two or three preliminary coats of color; then three or four coats of the intended body color, generally prepared in turpentine, concluding with the varnishing.

With so many absorbents underneath, laid on as fast as they dry, and on a surface of wood, of which the grain had been opened and separated by the operation of bending, can it be wondered at, that the recesses should retain the volatile particles of each successive coat, and that, finally, the varnish should be drawn inward by the powers of absorption under it, and thus lose that lustre—the characteristic of good varnish. The remedy for this is

now to be found, and would seem to be this. Let the panels have sufficient time to become thoroughly dry—for the humidity to evaporate, and the grain to assume its fixed quality—before a coat of color is put on. Use the best ground lead and oil, and let each coat be well dry before the succeeding one is laid; let the filling up be well ground and well amalgamated, and when enough is put on, stand as long as possible before rubbing down—the time so required may be occupied in forwarding some other department of the work. After rubbing down, warm air, either natural or artificial, is requisite to expel the humidity, particularly around the grooves, into which the water will penetrate, notwithstanding the oil lead used in painting. Too frequently the panels are rubbed down between each coat of varnish, before they are sufficiently hard, in such case the varnish is literally rubbed off; in this, much depends on its character, as well as the atmosphere in which it is used. In every other branch of the business, any defect or imperfection can easily be traced to the right cause; but in the painting department, it is not so easy—many effects show themselves, and phenomena to baffle the most patient inquiry. But in the hands of a skillful workman, ambitious of good work, many defects may be avoided by study to improve, and research for the cause.

PAINTS OF THE ANCIENTS.

A certain class of persons, little acquainted with the details of the industrial achievements of the present day, and the history of their slow development, are much inclined to extol the accomplishments of the ancients in different arts and sciences, asserting even that they knew the uses of steam, electricity, etc.; also that many of their technological manipulations are totally unknown at the present day. Some have gone so far as to write treatises on the so-called "lost arts" of the ancients.

This strange misapprehension results from one-sided education, in which too much attention is paid to the past, and too little to the present. It is fostered, moreover, by a peculiar disposition of the mind, disposing it to veneration for what is old. Persons thus prejudiced by nature and training, take a hint or suggestion of some classic author for a statement of an existing state of things. They forget that mere suggesting or speculating is not discovering nor inventing. Much less is it the practical execution and application of an invention.

Much has been said and printed about the magnificent colors of the ancients. It has been asserted that we can not equal them. Let us see what foundation there is for this assertion, which rests on ground about as reasonable as the other rash statements of a similar nature.

Landerer, a German chemist, has lately occupied himself with investigating the colors used by ancients on statues, monuments, bas-reliefs, and vases, in the city of Athens, in Greece. He found that what had remained of the coloring matter on these objects was so hard that only with difficulty it could be scratched off by means of an iron tool. Analysis showed that the paints were partially metallic and partially earthy. The painters of the Ionic school, however, used also vegetable substances to obtain bright colors.

Red. The red colors proved to be the natural vermilion, or cinnabar. Artificial vermilion has a much brighter red color, but was only invented by Kallias, four hundred years before the birth of Christ. Probably, the natural cinnabar used before that time was obtained from the Laurian silver mines in Attica. It was mixed with red earth to brighten the color. A reddish silicate of alumina and iron was extensively used, very similar, according to the description of Landerer, to the material of the same ingredients now produced at Berlin, in Connecticut, and extensively employed in this country as a red paint. The burnt ochre was another red, made by Kidias in the year 368 before Christ, by burning the yellow ochre from Sinope and Cappadocia. Red lead, or minium was obtained by burning natural litharge (oxide of lead). This litharge is still found near the harbor of Bulkau, on the island of Zea. It was called *miltos*—a name possibly also applied to cinnabar. In the Laurian silver works, a lead oxide was obtained which could be easily converted by burning into red lead. This is the usual red paint found on antique vases.

Besides these mineral reds, the ancients employed the root of the madder, and the red of the *purpura* shell-fish, as well as the so-called "dragon's blood" from the East Indies, which we now know to be a dried vegetable juice. These colors, which by nature are not permanent, were put on the marble by means of either a fine hydraulic cement, or a wax varnish.

Yellow. The ancients had no bright yellow at all. Our chrome, cadmium, and zinc yellows were entirely unknown to them. Their principal yellow was the yellow ochre. To make it brighter, they mixed it with pigments, as, for instance, white-lead. A yellow oxide of lead, identical with the mineral *chrysitis*, was also used, and is still found in the Laurian mines. Aristotle speaks of orpiment, in his time called sandaraca, and now known to be sulphide of arsenic. This is, however, now no more found in any remnant of old Grecian workmanship.

Green. The only greens known to the ancients appear to have been compounds of copper, partly artificial, and partly natural. Powdered malachite, a beautiful green natural carbonate of copper, was brought from the island of Cyprus, where copper (*cuprum*) is abundant. This island, being dedicated to the goddess Venus, copper was supposed to be the metal of love; and hence the absurd rule to introduce compounds of copper into philters or love potions. These ingredients would be inert in very small doses, and in larger ones would cause vomiting.

A silicious compound of copper was also found to be the green color applied to some funeral monuments.

Blue. This was, like the green, always a compound of copper; either the powdered lazulite, a blue natural carbonate of copper, or the beautiful *ceruleum*, which was the best color they had, and was artificially produced by fusing together copper, niter and sand.

Black. This is found to have been either ivory-black or a very fine charcoal. Ancient writers corroborate this conclusion, by saying that Apelles produced beautiful shaded tones by means of burnt ivory. Asphaltum was also used; it was dissolved in spirits of turpentine, and constitutes the black varnish on vases.

White. White-lead was known, but appears to have been little used; most whites are found to have been the earth of Mylos, which is a white silicious clay. According to classic authors, white-lead was extensively used by the Greek ladies as a cosmetic, for which purpose it was made up in small cakes or bars.

Gilding. Plutarch mentions that heavy gold-leaf was attached to the Corinthian bronze by means of mercury.

and subsequent pressure and friction; but the gilding investigated by Landerer was found to be attached to the marbles and vases simply by means of white of egg or of gum arabic. It is doubtful whether the Greeks were acquainted with the gum *sarcocollæ*, which was used by the Egyptians for the same purpose.

Encaustic painting was more frequently practiced. The Greeks had three styles of it. They burnt only the outlines on ivory, with hot irons, as we nowadays often see it done on wood, with shadows and all; or they brought the wax-colors on the surface with appropriate dies and pens, and melted them in by heat; or they painted with brushes, having previously liquified the paint mixed with wax or resin, with some solvent or by heat. The latter method appears to have been in use to paint ships and boats with a variety of figures.—*Manuf. and Builder.*

Trimming Room.

HINTS TO TRIMMERS.

If trimmers will have a little care in getting bodies in the trimming room, and setting them up at their benches, they would save that everlasting jar between themselves, finishers, and painters, about scratches and bruises which often occur in the trimming room, and which are generally caused by the carelessness of somebody, and that somebody will never own up, either if caused by carelessness or accident. You can't blame the painters for growling, for injuries to the paint not only delay the finishing of the carriage, but make it almost impossible to match the color unless it is black. So raise your body from the floor, either with horses or a trussel, and don't leave frames or irons hanging near enough to fall against it. In getting in and out at work, look out for your toes and heels that they don't do any damage. It is a good plan to cover the doorway with old carpet, of which there is generally plenty about a shop. In fact, too many, as they are the best of moth breeders, unless in constant use.

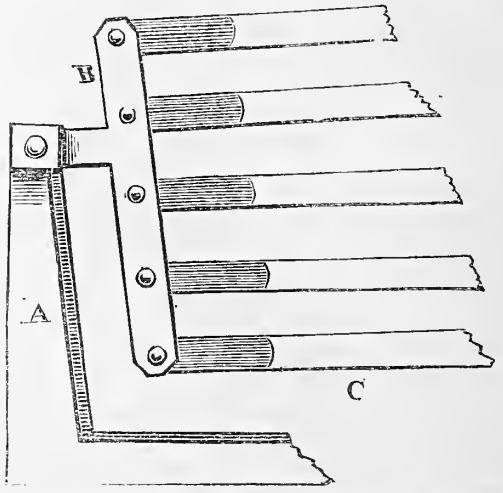
SPRING BACKS.

No heavy job is considered complete now-a-days, without a spring back. The cheapest and best way of making them is, to paste out two thicknesses of buckram, cut out to fit against the back panel, leaving it high enough to nail against the rail frame on top. Next mark off equal spaces each way, five lengthwise, and three in depth; after which tuck a little hair or moss underneath the bottom of the spring, when it is sewed fast to the buckram to prevent clicking. Then tie them together with a strong cord, knotting at every crossing and securing the ends well with a strong tack. In tieing keep the springs straight with each other, tipping the tops of the bottom row toward the bottom, and the top row toward the top of the back. Draw your burlaps over easy—nail at the top—spread some hair over the top portion—bring down your burlap and baste about the middle. This will bring your back out full at the top.

Steel Tubular Bow Sockets.—Such is the name of an article recently patented by Messrs, Topliff & Ely, of Elyria, Ohio. We expect to give fuller details of it in our next number.

NEW ARRANGEMENT OF SLAT-IRONS.

In this improved arrangement of the slat-irons, A represents the iron prop; B an iron T, to which the slat-irons are riveted, and C the slat-irons, five in number,



hinged to the T by rivets, as before stated, to take the bows. For carriages—such as landaus—this arrangement of the bows is a decided improvement over the old one, especially when applied to the front half of the head, as, in falling, the lower bows are thrown back, thus clearing the dickey-seat and allowing of a shorter coupling. This, we believe, is public property and unpatented.

Editor's Work-bench.

SUGGESTIONS FOR NOVICES.

Coach-making, as we have elsewhere shown, is attended with numerous perplexities. Many of these, however, may be avoided, by an early attention to system, and a determination to employ none but the most careful workmen, and the first quality material. We know that the temptations arising from competitions in trade, and the desire in some minds to get rich *by selling cheap*, are strong inducements to act otherwise, but a lifetime of observation has convinced us that "the cheap Johns" of business have, in nearly every instance, failed of success. It is plain that some individuals will be induced to trade, once at least, where the reputation for low charges reign, but it is equally evident that they seldom call the second time, for strange as it may appear, the class of individuals who *run* for cheap prices, aptly expect to get first-class goods, and failing in this, *drive* away from tricksters—such *cheap* business men usually are—with woe-begone countenances and with anathemas on their lips, and rarely ever, if a customer is worth having, will they call a second time. It is a well settled axiom, that "whatever is worth doing at all, is worth doing well," especially is this true when applied to pleasure carriages, upon the perfection of which life and limb are dependent.

With the foregoing as introductory, we suggest to the novice in business life, that he sets out determined to succeed, and in order to do this he must be punctual in redeeming his promises, honest in all his dealings, and polite to all with whom he comes in contact. If these resolutions are fully carried out, he will undoubtedly merit, and likewise be successful in securing, a competence.

GOOD TASTE.

Carriages constructed for the purpose of pleasure, are considered works of art; in the construction of which is laid open a wide field for the development of *taste*, in form and proportion as well as color. In form, the carriage, be it whatever it may, the draftsman should keep this one important object before him at all times, viz.: To display taste and correct design in the lines which constitute the form of the carriage; to guard against unsightly shapes and curves, broken or abrupt sweeps, &c.; to have one line follow another *in harmony with the leading line of the body.*

How often do we see in shops where practical and experienced draftsmen are not employed, when the assumed draftsman is engaged in placing a draft upon the board—all hands, the boss included, rush to the rescue, one suggesting that this line be placed a little higher, another that it be lower, another that this curve be made with less sweep; others that it should have more; and perhaps not one of the party has a particle of *taste*, none of them, paying any attention whatever *to the leading line of the body.* Hence we see so many montrosities in the shape of carriages thrust before our eyes.

The size and weight of the carriage should be proportioned to the power which is intended to move it, as well as the persons which it is designed to carry. The proportion of the parts having been once accurately settled, the same rule of proportion must be observed, whether on an increased or diminished scale.

Having settled the preliminaries of form and proportion, the next consideration is that of color, and a draftsman of practical experience, always takes this matter into consideration, regardless of the opinions of painters, and very seldom does he fail in showing that he has perceptive faculties superior to theirs, for the reason that his experience has given him the advantage of a high cultivation. Taste in the matter of color can do much toward amending the defects (if any) in the draft, or at least divert the attention of ordinary observers from dwelling upon them. Certain colors produce their effects, by contrast, as green and red, purple and yellow, orange and blue. Others again produce their effect by harmony, as green and drab, or brown and amber. Others again by gradation, as the different shades of green, blue, drab, and brown, which consist of almost an endless variety. Colors are generally divided into two classes, the *warm* and the *cold.* Red and yellow and their various gradations are warm colors; green and blue and their various gradations being cold colors. The intermingling of the opposite colors form neutrals. It therefore becomes the duty of the painter to consult the form and proper proportion of the vehicle, or the color and style in which it is to be executed. If there is any particular line or sweep laid down by the draftsman, which he wishes to appear the most prominent, the painter should be careful and carry it out in the painting, as much depends upon the taste and judgment of that individual in following the rules as laid down by the draftsman, in making the outlines of the carriage appear (when completed) in harmony with the original design of the body. What a fallacy it would be in him to paint a concave panel any other color than black, for the reason that any other color will (when finished) show a flat surface, or where a particular belt or line is laid out by moldings upon the side elevation, to paint it the same color as the upper or lower panel.

Nationality has much to do with the taste of individuals, so far as colors are concerned. The Teuton has his—red, yellow, and black. The son of the Emerald Isle chooses green; the American, the red, white and blue, and by stepping into many paint-shops, it would be unnecessary to inquire from what nation the foreman hailed, because we can form an opinion from the work which has passed through his hands. Many a good draft has been spoiled for want of *taste* in the painter, as I have instanced in the above cases.

The same remarks are equally applicable to the trimmer. Nothing is a greater violation of the law of good taste and correct proportion, than to take a plain body, in which no attempt whatever has been made at elaboration or fancy in its construction, and apply to the same an outfit of trimming which has been executed in the most extravagant style of ornamentation. It shows upon the face of it a lack of *good taste* as well as judgment on the part of the superintendent. A plain and unpretending carriage, when thus arrayed with gaudy trimming, which evidently cost more than all the other materials about it, has an effect upon the mind of a close observer, highly prejudicial to his opinion of the one, who has gotten up the affair "regardless of expense," and it at once becomes apparent that sound judgment and good taste were lacking in the foreman.

Now, there are many coach-makers who display no more taste or judgment in what constitutes correct proportion than does the drayman at their door, and consequently when the carriage is run out before the eyes of the world, they must hear many hard things said of their mechanism, by those who are more experienced, and have taste. It therefore becomes necessary that such should employ a competent workman, in whom is combined the

requisite qualifications to superintend the business, in order to bring it to a successful issue. *Taste* is a peculiar gift with which certain individuals are endowed at birth, and which cannot be acquired either by study or any amount of application. This is founded in reason, inasmuch as the faculties of some persons are at birth, more perfect than others; the difference exists in the perceptive faculties, on which the qualities of taste must alone depend. Nearly all persons have the germs of taste to a greater or less extent. If it were not so, the expression "a person of good taste" would not be used so commonly as a mark of approbation, showing a distinction between such and those who are deficient in the qualification.

PROPERTY OF A GENTLEMAN GOING TO EUROPE.

Such is the reason given by many speculators in "old traps," through newspaper advertisements, in our day. In England this class of shysters inform the public that they are about to make a trip to the Continent, and therefore *must* sell at a sacrifice, or far below the original cost. How they advertise in other countries we are not informed, but the presumption is they adopt some similar excuse in order to gull the public, and turn their old traps into coin, when they become unfashionable.

This sort of pretense—for it is nothing more—has been going on in Europe for over one hundred years, and in this country for the past half century, without being "played out," strong presumptive evidence that, in the opinion of some, the fools—some of them at least—are yet alive. It is laughable to hear them say "the carriage is by one of our best city makers, and nearly new," *but must be sold.* We have attended some of these sales merely out of curiosity, and have had our opinion of them fully tested, without shaking our belief in their humbug nature. Why don't these persons advertise their sales and let their wares stand on worth alone? Simply because they think the public "love to be humbugged"—and they do!

Some of the "City mart" auctioneers resort to such "tricks in trade" as ought to "make a horse laugh." Their carriages are all "city built" by the best makers; always "elegant" and "superior," never otherwise—at least such is the inference from their representations. As to the horses sold at Tattersall's, they never offer any other than *first-class.* They are either "high-bred, stylish and handsome," or else "extra fine and well-bred," or "very stylish, prompt drivers, free from all vices and tricks," and "warranted sound and kind, which a child may drive safely." The wonder is how these auctioneers are so fortunate as to monopolize all the good articles, without mixture, while so many defective ones are offered elsewhere. Are they so honest that they cannot conscientiously offer the unsound animal?

COACH-MAKERS' BUILDINGS.

We have previously announced that the Messrs. Wood Brothers were erecting new accommodations for their business, on Broadway, which they expect to occupy on or about the first of May next. The edifice will cover five lots, with a front of fifty-one feet (Nos. 740 and 742) on Broadway, and another of eighty-one feet (Nos. 45, 47, and 49) on Lafayette Place, being two hundred and seventy-nine feet deep from street to street. The building, when completed, will be five stories high, exclusive of a basement and sub-cellar, supplied with an ornamental iron front on Broadway, and a Mansard roof. The cost of the building, of which Edward H. Randall is the architect, will be about $175,000. We understand that, with the exception of No. 47 on Lafayette Place, which belongs to the firm, the other four lots are held on a lease for twenty-one years. The first floor, basement, and sub-cellar will be occupied as a carriage repository &c., by the firm, and the lofts let for other business purposes. When completed, this will undoubtedly be the finest repository in New York, and creditable to the enterprise and spirit of the firm.

In addition to the above, Messrs. J. B. Brewster & Co., whose manufactory, for some years, has been located on Twenty-fifth street, are erecting a new edifice, with a view to the enlargement of their increasing business. One portion, with a front of forty feet on the street, is designed as a repository for new work, and another adjoining, occupying the space between the new and old one, with a front of twenty feet, will be used exclusively for the storage of second handed work. The buildings will each be one hundred feet deep, the western one four stories high above ground. This building will have an iron front and Mansard roof to it.

Mr. W. C. Dunn, whose manufactory on the Third avenue at Eighty-seventh street, was last year unfortunately destroyed by fire, has since erected a building on the site of the ruins, seventy-six feet front and one hundred and twenty-five feet deep, four stories high with the addition of a basement for the smith work. Mr. Dunn will again commence business about the first of May, with many of his old hands, with whom he is a favorite, they having been with him ever since he and his brother, now deceased, started business, some twenty years ago. When the fire occurred, noticed at the time in our pages, some of the men had unfinished jobs in hand and chests of tools all destroyed. We learn that the boss has since not only paid the workmen for the work done on jobs destroyed, but likewise generously presented the wood workmen with new sets of tools, a matter of such rare occurrence that it is worthy of note, and highly commendable.

CLOSE OF VOLUME ELEVEN.

With the next number, volume eleven will close, when we shall as usual furnish a copious index to the subjects therein contained, and a handsome title-page. It gives us pleasure to say to our friends, that notwithstanding competition, and the effects of dull times with the craft generally, our success the past year has been quite satisfactory to us, in a pecuniary point of view. We trust to still receive the patronage of every right thinking member of the craft for the next volume, of which we shall speak more in detail next month. Meanwhile, we hope our friends will canvass for the increased circulation of our work the coming year, especially those who are opposed to agrarianism in its worst form, as it has appeared in this country from a certain source, and which, if encouraged, will sap the very foundations of business enterprise.

LITERARY NOTICES.

Among the new publications in our exchange box, we find *The Technologist*, a work especially devoted to engineering, manufacturing and building, No. I, Vol. 1, for February. The distinguishing feature of this Journal is the fact that all articles and illustrations are original; the publishers pledging themselves that no puffs of worthless inventions shall be inserted in its pages under any circumstances whatever, which if carried out, will be commendable.

The number before us consists of forty-four large pages, printed on very superior paper, and in the best style of typographic art. Altogether, it is the finest looking journal of practical science now before the public. The articles, too, are of unusual excellence, and contain matter calculated to instruct and interest all classes. The titles of a few of the subjects discussed are,—Technological Education, Tempering Steel, Trial of Steam Engines, Improvement in Distillation, Sunless and Airless Dwellings, the Measurement of Electrical Resistance, Vision and the Stereoscope, the Walks of New York Central Park, East River Bridge Caissons, the Microscope, Lessons on Drawing, Relation of Technology to Insurance, etc., etc. The yearly subscription is Two Dollars, and the price of single numbers Twenty Cents, a sum that seems ridiculously small when compared with the size and character of the Journal. It must require an enormous circulation to make the enterprise pay at these figures, and it is pleasant to see that the Publishers have sufficient faith in our American workingmen to lead them to undertake it.

The Technologist is issued by the Industrial Publication Company, whose office is at 176 Broadway, New York. Every mechanic ought to send for at least one number of this Journal.

EDITORIAL CHIPS AND SHAVINGS.

Bonner's Road-Wagon.—We had the pleasure a day or two since to inspect a very light road wagon, weighing only 100 lbs., just completed by J. B. Brewster & Co., of 25th street, for Robert Bonner, of the *New York Ledger*, in which he intends to drive his celebrated horse Dexter. This buggy is believed to be the lightest ever built for the road. The axles and tires are made of Bessemer steel, and it is strengthened in the wood-work by the patent supporting bars, lately invented by Mr. Brewster. This buggy is painted black, and the carriage is striped with a three-eighths line, through the middle of which is a narrow one in bronze. The trimmings are blue-black, of a novel character, set off with patent leather. The price of the buggy is $335, and is a beautiful article.

Co-operative System.—Sometime ago we noticed the arrangement made by the Messrs. Brewster & Co. for carrying out a new system of co-operation, which at the time created much excitement in the public mind. We have not since heard much on this subject, but have now received a communication from an *outsider*, who would probably like to be *counted* into just such an *institution*. We give an extract from it:—

"Friend Stratton: Is the good time coming that we read about in the Good Book? I have reference to the co-operative system started by one of our leading coach-making firms in this city. They commenced on the first of January. As I understand it, every employee is to receive his share of the profits in ratio to the amount of money he earns, and I believe the system is working well. The men seem well satisfied so far, and are working like beavers. Is this to be the end of strife and contention between the employer and the employed? I hope so, as it will settle the vexed question of societies and strikes, for where every man is an interested party, he feels that every blow he strikes, every saving he makes in stock, and every improvement he makes or participates in, that he is no longer a plodding tool for others only—he is a man. Although inaugurated at a time of general depression in business, yet I believe the known ability and energy of the men engaged in this experiment are sufficient to push it to a successful issue, encouraging others to go and do likewise."

SAW DUST.

Horse-Power Useless.—Mirabeau N. Lynn, New Albany, Indiana, has invented what he calls a "Steam Plough Wagon and Farm Power," which he says "is adapted to any service now performed by horses." Its weight is 1,600 pounds; power, four-horse; cost, $500 to $600. The mechanical combinations are described as being a cross shaft upon a frame, supported by two main wheels, and one heavy guide wheel; upon the shaft, driven by two upright cylinders attached at ends, are placed four irregular eccentrics following four eccentric rods attached to eight toggle joints (or horses' legs), whose motion is so regulated that a continuous and powerful forward movement is made, independent of aid from driving wheels.

Editorial Tactics.—An editor out west, who has an eye to business, and in order to increase the circulation of his paper, announced in a late number, that every new cash subscriber might kiss his better half, who was young and handsome. The next day there was an alarming rush of people in his office, among them many old subscribers, who wanted to take an extra number. Such was the confusion, that in the event of a mob, he took in his sign and closed up his office. He has ordered a steam-power press since, and his wife was plastering her cheeks at last accounts.

New Horseshoe.—The Ames Company, at Chicopee, are filling a contract for a peculiar adjustable horseshoe—the invention of a Baltimorean—which is made to be taken off at night or when the horse is not being used, and put on as readily when wanted as a pair of boots. The corks of the shoe are also adjustable, and new ones can be fitted when one set is worn out.

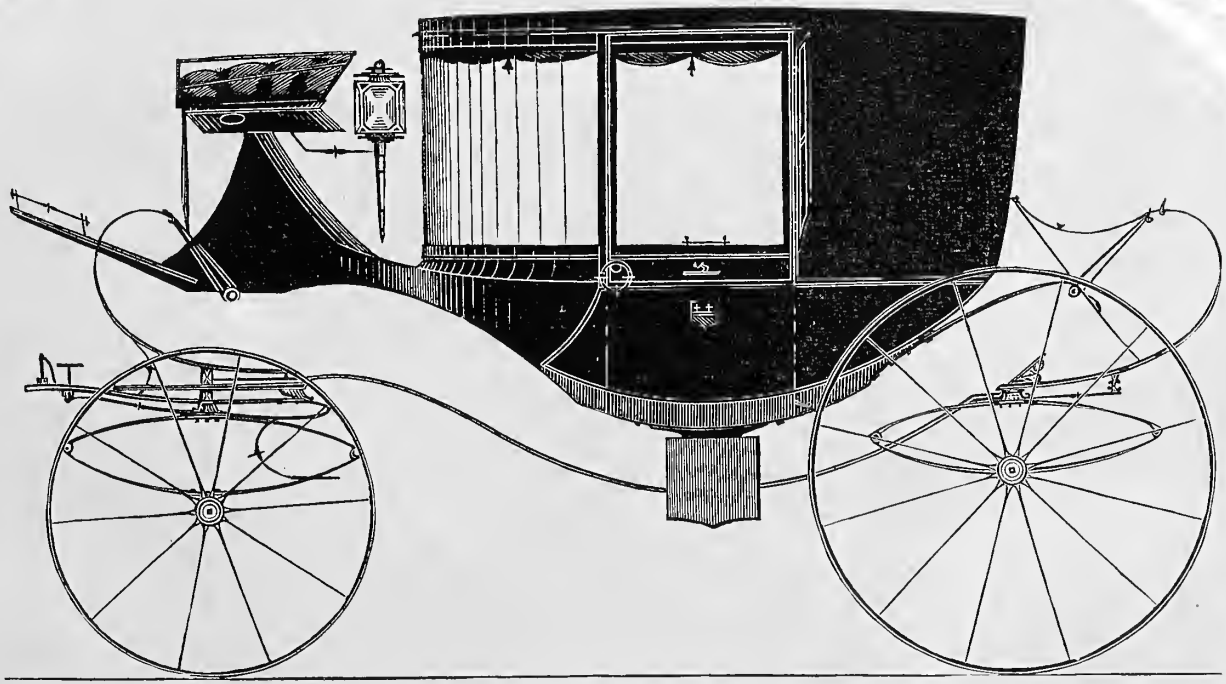
Serious Blunder.—A telegraph operator, who had sent a message to a Norwalk family, to meet an expected visitor, at the depot with the "horse," blunderingly substituted the word "hearse," and on the arrival of the train the visitor found that desired vehicle awaiting to transport him to his destination.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

New York, March 20, 1870.

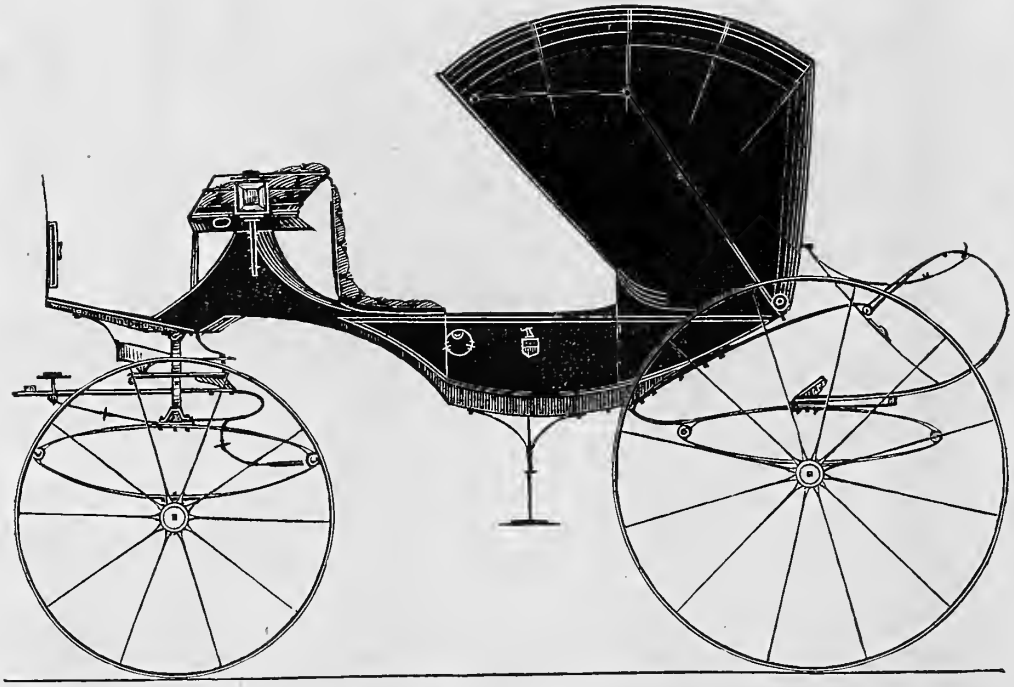
Apron hooks and rings, per gross, $1 *a* $1.50
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 7 c.
Axles, plain taper, 1 in. and under, $5.00; 1⅛, $6.00; 1¼, $7.00; 1⅜, $9.00; 1½, $10.00.
Do. Swelled taper, 1 in. and under, $6.50; 1⅛, $7.00; 1¼, $8.00; 1⅜, $10.00; 1½, $13.00.
Do. Half pat., 1 in. $9; 1⅛, $10; 1¼, $12; 1⅜, $15.00; 1½, $18.00.
Do. do. Homogeneous steel, ⅝ in., $10.00; ¾, $10; ⅞, $11.00; long drafts, $2.50 extra.
☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.
Bands, plated rim, 3 in., $1.75; 3 in., $2; larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Bolts, Philadelphia, list. 45 off.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 16 *a* 20c.
Burlap, per yard, 10 *a* 12c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Bruss., $1.75 *a* $2; velvet, $2.50 *a* $3.50; oil-cloth, 40 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $1.25, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $12 *a* $16.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.25.
Enameled cloth, muslin, 5-4, 32c.; 6-4, 50c.
Enameled Drills, 45 in., 45c.; 5-4, 40c.
Do. Ducks, 50 in., 65c.; 5-4, 60c.; 6-4, 80c.
☞ No quotations for other enameled goods.
Felloe plates, wrought, per lb., all sizes, 15 to 18c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.25 *a* $1.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.
☞ For a buggy-top two pieces are required, and sometimes three.
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $1.75.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach. $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 23c.; railing do. 20c.; soft dash, No. 1, 14c.; do., No. 2, 10c.; hard dash, 15c.; split do., 15c.; No. 1, top, 23c.; enameled top, No. 1, 23c., do., No. 2, 20c.; enameled trimming, 20c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 12c.; ⅜, 13c. *a* 16c.; ½, lead, door, per piece, 30c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates, $5 for 25, $8 for 50.
Oils, boiled, per gal., $1.20.
Paints. White lead, extra, $12.00, pure, $13.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $6 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Sand-paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's, 40 per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 13c.; bright, 15c.; English (tempered), 18c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.
☞ Two springs for a buggy weigh about 23 lbs. If both 4 plate, 34 to 40 lbs.
Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.
☞ For extra hickory the charges are 10c. *a* 12½c. each.
Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 12c.; 1-4 x 1, 12c.; 3-16 x 1 1-8, 13c.; 3-16 x 1, 13c.; 3-16 x 7-8, 14c.; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close plated nuts and rivets, 75*a*80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2 Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 50c.
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.00; nonpareil, $5.25.
Do. English, $6.25 to $7.50 in gold, or equivalent in currency.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.



C AND ELLIPTIC SPRING CLARENCE.—½ IN. SCALE.

FRONTISPIECE.—*Designed expressly for the New York Coach-maker's Magazine.*

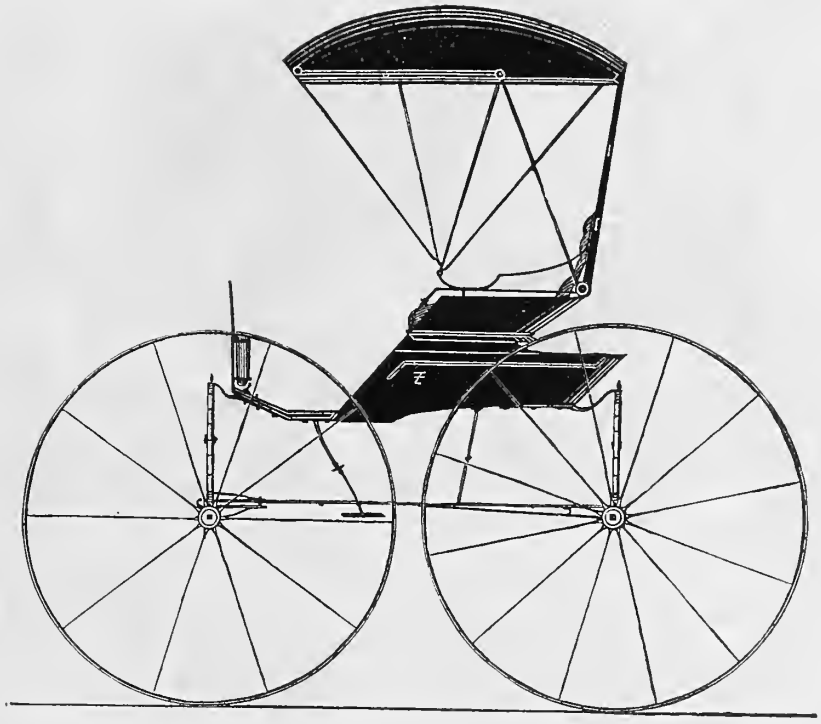
Explained on page 182.



C-SPRING CALECHE.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 182.



NEW YORK BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 182.

THE NEW YORK
CARRIAGE & MACHINE MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XI. NEW YORK, MAY, 1870. No. 12.

Mechanical Literature.

TREATISE ON THE WOOD-WORK OF CARRIAGES.

(*Continued from page* 162.)

LXIV. Creation of Surfaces.—The convention which serves as a base for the method of projections is sufficient to express the form of all bodies terminated by flat sides, such as the body we have represented, because in this case all the projections of intersections of surfaces are straight lines. But on curved surfaces the projections of their intersections or of their apparent contour are not always sufficient to make exactly known the nature of these surfaces. Then, before it is possible to determine the form of lines of intersection of surfaces, it is necessary that the nature of these surfaces be known.

To define the form of regular bodies and the geometry of imaginary surfaces as produced by the running of a straight or curved line; or of a constant or changeable form when it moves and the law of movement which depends upon the nature of the surface to be produced—they call generator the line which in its movement describes the surface, and "director" every line after which the generator moves.

After this new convention a surface is defined when at any point of it we can: 1st, pass a line (generator) through this point in a stated position; 2d, give the form which this line (the generator) describes in passing through the point and this position.

Ordinarily the position of the generator on the horizontal or vertical plane is fixed perpendicular to the two plans of projection, passing one or the other at the given point. The intersection of a given surface and of the horizontal or vertical plane striking it is a generator of the surface.

This new convention is suppletory to and completes the method of projections; it is a supplement because it is impossible without it to project all the points of a surface so as to know their form; it is completed by furnishing the means of determining on the surfaces as many points as are necessary to represent and construct any object of a regular form.*

In the second part we will treat on the different curved surfaces of which carriage bodies are composed, and then describe the forms and particular positions to be assigned to their generator and director lines. For the present we will give an example of the generation of two surfaces by the movement of a straight line, which will serve to make this new convention understood, and also complete the method relative to the representation of bodies.

LXV. The plane, which is the most simple of all surfaces, may be considered as produced by the movement of a straight line, of which all points describe straight parallels. If on a plane is given a position by two straight lines meeting at a point, any one of these could be taken for the generator or director line. The plane L (*fig.* 28) is a plane the position of which is determined by two straight lines A B and B C. Taking line B C for the generator, we presume that it moves parallel to its first position by gliding on line A B as its director. By this movement the generator produces surface L, and the lines covering it can be imagined as being made by the generator B C.

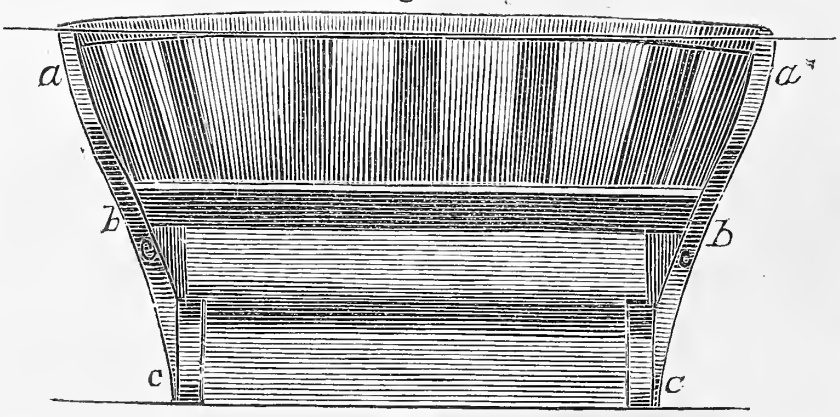
When, on the contrary, we take A B for generator, and B C for director, all the lines covering surface L would be the successive positions of the generator, and every one of these lines is a generator of this surface L. We will now give an example of the use of generators for determining the point of a surface.

Let it be any point ($q\ q'$, *fig.* 47) of which we have to find the two projections by the aid of the two following given: 1st, that the point has to be found on the surface ($a\ b\ c\ d, a'\ b'\ c'\ d'$) of the body and on the most elevated part of the wheel-house; 2d, that its horizontal projection has to lay on the arch of circle B, described from point E as center.

Because the proposed point has to be found on the most elevated part of the wheel-house, we carry a horizontal $x'\ y'$; at this height it passes through the vertical projection of this point, but actually we do not know yet where this projection is. We consider line $x'\ y'$ as the vertical projection of a generator of surface ($a\ b\ c\ d, a\ b\ c'\ d$); we find the horizontal projection of this straight line by carrying through the projections already determ-

* By the expression "regular form," we do here not only understand lines and surfaces which geometry considers, and of which all points can be determined by the analytic method, but also all surfaces of which it will be possible to determine the position of any point by a graphic construction after having settled the law of its generation.

Fig 48.



ined, x' and y' perpendiculars to X Y, till they strike lines $a\ d$ and $b\ c$ at x and y; line $x\ y$, which joins the two latter points, is the horizontal projection desired.

After having the two projections, horizontal and vertical, of the generator ($x\ y$ and $x'\ y'$), the two projections of point ($q\ q'$) will be easily found; the first has already been obtained by the intersection of the arch of circle B with the horizontal projection $x\ y$ of the generator. But the two projections of the same point are (*art.* 59) on the same straight line perpendicular at the intersection X Y of the two plans of projection; and furthermore the other projection has to fall on $x'\ y'$, where it will be found at q' the intersection of the perpendicular $q\ q'$ to X Y with the vertical projection $x'\ y'$ of the generator.

LXVI. GENERATION OF A CURVED SURFACE BY THE MOVEMENT OF A STRAIGHT LINE.—Figure 48 shows the front of a phæton body on the horizontal plan. If we imagine a horizontal line A B actually applied to the upper part of the front pillar moving from up to down parallel to its first position, supporting itself constantly on the points $a\ b\ c$, $a'\ b'\ c'$ considered as directors, this line will produce planes C and C'; or, what is exactly the same, if planes C C' are well executed, they must be such that a horizontal A B applied at any height of the planes coincides perfectly with them.

A surface produced thus by the movement of a straight line parallel to itself is a plane when the director is a straight line (*art.* 65), and cylindric when the director is a curved line. When the planes of the different pieces of wood, placed symmetrically on each side of the body, as those of the pillars of the phæton which we have just now considered, are on the same plan or on the same cylindrical surface, the body-makers say they are *a la reglè* [according to rule]; because, when they put together the bodies, to assure themselves that the pieces placed symmetrically on each side are well put up, they apply to these planes, at different points, the edge of a rule, which they take care to hold horizontally—or the planes are well executed and the pieces correctly put up if the edge of the rule, thus applied, coincides perfectly with them.

Nearly all surfaces limiting the front, rear, top, and bottom, of bodies, with the exception of pavilion tops and rear sides, which are sometimes made doubly curved, are either plane or cylindric surfaces having for generator a horizontal line, both when the sides are paneled up or only provided with sticks, as those of C and C' which we considered.

This mode of generation is the one offering the greater facility in the building of bodies, because all the pieces and braces composing one side can be finished and worked out with more accuracy and in less time than if they had to be worked lengthwise. But if the surfaces we considered had been doubly curved, it would have required, to bend the panels, an apparatus which always complicates the work; and to prevent these panels from getting out of shape, it is also necessary to hold them inside by an increased number of braces.

LXVII. These are, undoubtedly, the different considerations which have made us adopt for the front, rear, top, and bottom, of carriage bodies, such surfaces as those of which we have exposed the generation in the foregoing. These surfaces, without exception, for all bodies, project on the vertical plan, according to a line which is straight, when the surface is a plane, and curved when the surface is cylindric. Thus the surface on the top of a phæton box (*fig.* 47) being a plane, it projects according to line $a'\ b'$; and as the surface limiting the front pillars is cylindric, it projects according to curve $l'\ j'\ n'$. From this it follows that the whole line $a'\ b'$, $l'\ j'\ n'$, can be considered as the director of the surface which it projects.*

The principles which we have laid out in this chapter give a general idea of the method of representing bodies by the aid of geometrical figures. This method is not only applied to the surfaces of bodies, but all pieces of woodwork entering into their construction. Every piece taken singly is a body composed of plane or curved surfaces, absolutely like the body as a whole.

As we have not to deal in this treatise either with the construction of the perspective nor with the determination of shades, all that is left to complete this study is to expose in the second part the generation of surfaces suited to every kind of body.

(*To be continued.*)

THE ADVENTURES OF THREE JOURS.

BY H. S. WILLIAMS.

CHAPTER XI.

OUR worthy and talkative doctor proved correct in his prophecy, for when Loring walked forth a well man, Miss Corniel was his betrothed bride. It was his last day in the country, as Gloner had come out with a buggy to take him in the city next morning; and, strange enough, the former gentleman had found it either the safest or most convenient route to come by way of Mr. Linden's, where he had stopped for dinner, and had persuaded Miss Lucy to accompany him to his destination. What a delightful afternoon that was! How they all enjoyed it; and what a delightful walk they had through the old wood, that now presented all the glorious beauty of an autumnal

* We notice at the place of point n' on the vertical plan (*fig.* 47) two lines, of which one joins at z' with $l'\ j'\ n'$, and the other terminates at p'. These two lines represent the inside of the bracket, front pillar, and the foot-board, where some wood is left outstanding for the attaching of the irons. This little irregularity is made to alleviate the outside of body at point n', n'.

landscape, and back by the broad cotton fields, where the dusky laborers were gathering the fleecy staple, white as driven snow, and packing it in huge baskets, which, when the sun went down, they would raise on their heads, and march in single file to the gin-house, singing and keeping time to their steady marching.

It is the happiest period of our existence, when we have both youth and love to gild the sky o'erhead with roseate hues, and unfold the book of destiny at its brightest pages. Then life seems all one summer holiday, without a thought or care to ruffle the temper, or sadden the heart. And thus they felt, as they walked slowly homeward, with the shadows of twilight gathering about them, yet so dimly, for the full moon was already looming up in the east, as to be scarcely perceptible. But home was reached, the walk ended, a pleasant cup of tea was partaken of, and then followed a most delightful evening.

"As the horses are well cared for, and it would be a good deal of trouble to have them brought out," said Gloner, as the clock struck the hour of nine, "I propose that we walk home, Miss Lucy; it is such a lovely night. And I am confident that Miss Corniel and Mr. Loring will accompany us part of the way. What say you all? 'It is a heavenly night, and the soft air invites us,' as the poet lover told the haughty Pauline."

Of course all agreed to it, and they were off. It was a noisy enough party, as they walked slowly down the dusty road. All were in the best of spirits, and all had much to say; but when Miss Corniel and Mr. Loring turned back, a strange silence took possession of Gloner and his companion. The full moon made it almost as light as day; and from the tops of the Cherokee rose that bordered the road, the mocking bird would break out in sweetest melody for a moment, and then fold its wings for sleep again. Gloner was the first to break the silence. But why repeat the words, they would appear so plain and common place here? but they were so eloquent and musical as he pronounced them. It was the old, old story, repeated daily for centuries past; yet to the speaker and listener, if they truly love, ever new and beautiful. Lucy said nothing; but the clear moonlight falling full upon her sweet, upturned face, spoke all the heart felt, and Gloner saw the answer, the realization of his dearest hopes as he imprinted his first kiss upon her fair brow.

"Where is Mr. Linden?" he asked of a servant as they entered the house.

"In the library," was the reply.

"Tell him, if convenient, I should like to see him for a few minutes."

"Master requests you to walk in the library," said the servant when he returned.

"Wait for me in the parlor," said Gloner, as he followed the servant.

Mr. Linden was seated at a table on which were scattered various papers, which he had apparently been engaged in examining.

"I am sorry to disturb you," said Gloner, as he took the proffered seat; "but I wished to see you for a few minutes on an affair of great importance to myself, and of some interest to others."

"I am always ready, Mr. Gloner, to attend to the wishes of my guests. Pray proceed; I am entirely at your service."

"It is, perhaps, known to you," resumed Gloner slowly, "that I have visited your daughter for some time past as a suitor for her hand; and to-night I have been made happy by the knowledge that I am not indifferent to her. In fact, that the affection I feel for her is returned, but with the distinct assertion on her part, that with you rests the final result. I have come, therefore, to ask for your daughter's hand."

"This is very sudden, and, I do assure you, rather unexpected," replied Mr. Linden, after a moment's pause. "Lucy did say something last summer about your being a suitor for her hand; but I did not pay much attention to it then, nor have I thought much about it since; therefore, it has not had that serious attention that so important a subject demands."

"No one knows better than myself," returned Gloner, "that it requires your most serious thought; therefore, I do not ask a definite answer now. I wish, however, to present my case, when you can take your own time for consideration. I am well aware that, as far as my past history is concerned, my family, and my real condition in life, you are totally ignorant; and it is no more than right that I should enlighten you on those subjects. Of my parents I know but little, only that they were of the highest respectability; for they both died when I was but ten years of age. As I was an only child, I was placed in the charge of a bachelor uncle, together with what property my parents left, who, having no home but his hotel, grumbled a little about the trouble of a ten year old boy, and got rid of it by sending me off to a neighboring village to boarding school. At seventeen I was taken away and sent to the city, for the purpose of entering a lawyer's office, and making the law my profession. Not liking the dry details of Blackstone and Coke upon Lyttleton by itself, and taking quite a fancy to carriage-making, as well as having a natural taste for the use of tools, I went to work at body-making in the day time, and studied law at night. It was six months afterward ere my uncle found out what I was doing; and, although he protested against it most vehemently, yet, as I usually had my own way about every thing, I finally gained his consent to go ahead.

"When I reached the age of twenty-one, I was a good mechanic, and knew enough about law to pass a rigid examination, and get a diploma to practice. My uncle then informed me that the little property coming to me was not to be turned over to my account until my twenty-fifth birthday, unless I married before that time; and as I felt no inclination to give up my bachelorhood, and wishing to see the world, I packed my books and clothes in one trunk, my tools in another, and so started out as a carriage-maker. Since which time I have seen about all the country worth seeing. It was several months after I was twenty-five ere my uncle learned my address; but when he did, he wrote me that my property, originally a trifle over ten thousand dollars, had, by judicious investment, increased to over fifteen thousand, and was awaiting my orders in a city bank. As I had now arrived at a sober age, and as I rather liked my mode of living, I concluded to wait until I married before I touched it, and to win my bride without her knowing that I was worth more than my daily wages. I have succeeded far better than I ever dared to hope; and now I only want your sanction to my choice. Here is my uncle's letter, to which I referred."

He had risen as he was speaking, and now stood lean-

ing against the mantlepiece, looking down with his large luminous eyes in the face of his host; while the animation and the glow that the subject imparted to his countenance, together with his deep, rich voice—now very low, but beautifully distinct—caused Mr. Linden to think for a moment that he had heretofore underrated his good looks. Rising and pacing the room two or three times, Mr. Linden took up a corresponding position at the opposite end of the mantlepiece, and said: "Your past history, and your position in the world, are perfectly satisfactory. As far as your property is concerned, I can truly say it does not influence me in the least, for I was almost penniless myself when I married, and I long since determined to let all suitors for my daughter's hand woo upon equal footing, so they were gentlemen. She is an only child, and I have enough to insure her comfort and independence; and all I ask in her married relations is to see her happy. If you have my consent, what do you propose to do after your marriage?"

"First, I shall want to visit my native State, get my property, and then, if agreeable, return here and invest it in enlarging and improving your place."

"Where is Lucy?"

"I left her in the parlor when I came here."

"Excuse me for a minute or two," and he left the room. Entering the parlor, he found Lucy seated by an open window. "Come here, child," he said, taking a seat in the center of the room; "I wish to speak with you."

Lucy advanced, threw her arms about her father's neck, and gently kissing him, she seated herself on a stool, and resting her arms on his knee, looked up in his face, and announced her readiness to listen.

"You must have forgotten," he said, "that it is time for our yearly trip to New Orleans and Mobile; in fact, we are nearly a month later than usual. When will you be ready to go?"

"Oh, papa!" she replied, "I was in hopes it was you who had forgotten it. I do not wish to go at all. I am so pleasantly situated here; and then I am so well, too. Why, I have not been sick all summer."

"Well, I believe your health is improving somewhat. What is the cause of it?"

"The same cause," she replied, in the most innocent and bewitching way imaginable, "that restored mama's health; for I've heard you say that when you first became acquainted with her, her health was very bad, but in less than a year she was well," and again she kissed him.

"Can it be, then, that you have allowed yourself to love that homely looking fellow—a man without a dollar, perhaps; and a mechanic, too?"

"He is a gentleman, papa," she replied, "and he has a true heart. All that I ask in a husband, if he only loves me."

"Well, well; perhaps you are right, pet. So, keep patient for a few minutes, and we'll see about it."

Returning to the library, he merely said, "She loves you, sir. Make her as good a husband, as she will a wife, and I will be satisfied. She is in the parlor."

In a moment Gloner was by her side, and —— Pshaw! why attempt to describe a scene that is indescribable.

The next morning our two friends returned to Montgomery, and for a week Loring was the lion of the city; for the story of his duel, with a thousand little side embellishments, had been freely circulated in every household, and every night he had more invitations to go out than he could possibly accept, while half the young men of the city called on him with their congratulations. In fact, the successful hero of a duel in Alabama at the times of which we write was a noted character among all classes of society.

On the following Sunday they both visited the country, and when they returned the happy days had been set—or rather *day*, for both Miss Lucy and Miss Kate had decided on marrying at the same time.

"I congratulate you most heartily," exclaimed Margrave, when told of it; "most heartily. And as my friend the poet says, at the grand *denouement* of the comedy, 'May you both be happy.' I guess I'll have to stir round, though. I'm about over that Memphis disappointment now, and I can never stand it to be left alone."

Our story is nearly done. Gloner and Loring were both married at Miss Cornel's, took dinner at Mr. Linden's, and then, accompanied by a merry, social party, they all proceeded to Montgomery, where they took the magnificent steamer "Southern Republic," for Mobile. Mr. Linden accompanied them as far as New Orleans, where he stopped, while they pursued their journey up the Mississippi, thence up the Ohio to Cincinnati. There they separated, Loring going to his home, for his parents were still living; while Gloner took a brief visit to his native village, found his uncle, received his property, and then all proceeded to New York.

Contrary to all expectations, the cold northern winter just suited Lucy's constitution; and she carried the best proof of good health—a delicate rose tint on either cheek.

Returning to Cincinnati, after a couple of weeks in the great metropolis, they met Loring and his bride by appointment, when all returned to Alabama together. As for Gloner's bachelor uncle, he came down to visit his nephew in the spring; and, although he only intended to stay until the middle of May, for fear of the "confounded hot summer," yet he tarried until November, then going North, he converted all his property into cash, and returning, invested it in an adjoining plantation.

As for Margrave, in self-defense for his loneliness, he pitched in and worked hard all winter, made money rapidly, so that when spring opened, he went to a flourishing inland town some twenty miles from Montgomery, and, with some little assistance from Loring and Gloner, he started a respectable carriage factory, where he still reigns, but *alone;* yet never so happy as when he has a new jour up in one corner of his bachelor quarters, telling how *near* he came to marrying that Memphis girl, and giving the history of his subsequent tramp through the swamps of Mississippi.

Gloner and Loring are still rival planters, but most friendly ones; and although it is hard to tell which excels, yet it is well known that their respective plantations are the best managed, and raise the best crops in the whole country.

And now, kind reader, ye who have followed us thus far in our simple story, seated by your own fireside, surrounded by a happy circle of loved ones, or in your dreary quarters of single-blessedness,

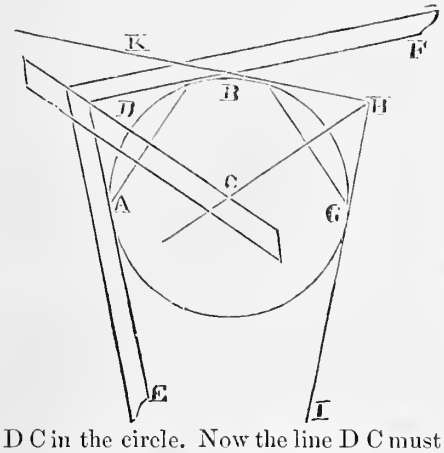
"Farewell! a word that must be and hath been—
A sound that makes us linger—yet farewell!"

(*Concluded.*)

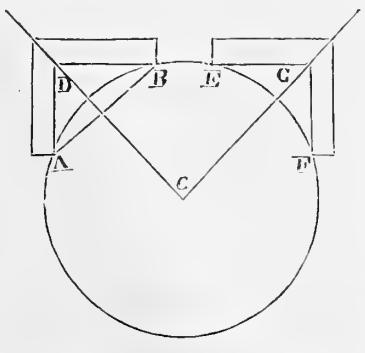
GEOMETRICAL EXERCISE.

BY P. B. J.

HAVING *a circle or segment of a circle, to find its center by means of a square and miter-square, without the use of the compass.*

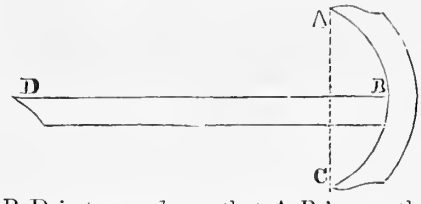


Let A B G, be any circle or part of a circle to which apply your square so that the inside edge of the blade and stock shall touch it as at A and B, shown in the figure; then take your miter-square and place it at the angle D of your square, and draw a line along its edge, as D C in the circle. Now the line D C must pass through the center of the circle, for it bisects its chord. Now if we move the square into any other position as shown at K H I, and draw the line H C, with the miter-square, in the same manner as before, that line will also pass through the center of the circle as before stated, and consequently the intersection of these lines D C and H C at C will be the center required. This problem will be found not only of great use to body-makers for finding the center of circles in round-cornered bodies and seats, when the original center is obliterated or cut off, but likewise to the wheelmaker it will be found an easy process for truly centering their hubs, as well as to the blacksmith's advantage in centering for his king bolt. It may be here observed by the workman, that when the circle is large it will be difficult to find a square or miter-bevel long enough, as in the figure here shown. The *square* must be at least equal to the radius of the circle, and the miter-bevel considerably more. I will now, therefore, show how that objection may be dismissed, and the operation performed with as much accuracy when the square is not equal in length to the radius, or when the miter-bevel is not long enough to reach the center of the circle, but it will be necessary to observe that the stock and blade of the square must be equal in length to each other, or D F must be equal to D E, and although D C may not be long enough to reach the center, it will tend to it, and the line drawn by it, may be continued by means of a straight edge.



Now in order to show how this is done, let A B E F be the circle, and A D B the square. Having the blade A D equal in length to the stock B D, apply it, as shown in the figure, so that the ends meet the circle at the points A and B, and with a miter-square draw a line in the direction D C, which will tend to the center of the circle. In the same manner apply the square to any other part of the circle, as at E F, and draw G C, by the help of a miter-square, then the intersection of these lines D C and J C, is the center required, for, though the blades of the square do not form a tangent to the circle, as the line D C bisects the angle A D B—it bisects the line A B, which is a chord to the circle, and passes through the center.

Hence a useful article may be constructed applicable to the center of all circular work, but which, I think, is not in general use, though some years ago I constructed one for my own benefit, and it was much approved of by several of my fellow-workmen, who used it at the time. I shall therefore describe its construction, which is very simple, being but a T-square, whose stock is a portion of a circle. Let A B C be the stock made of one piece of hard wood, well seasoned, the extremities of which at A and C should have a small piece of hardened steel affixed, so that it should not be subject to wear by use, into which stock, the blade B D is tenoned, so that A B is exactly equal to B C, and at the same time square to the cord A C.



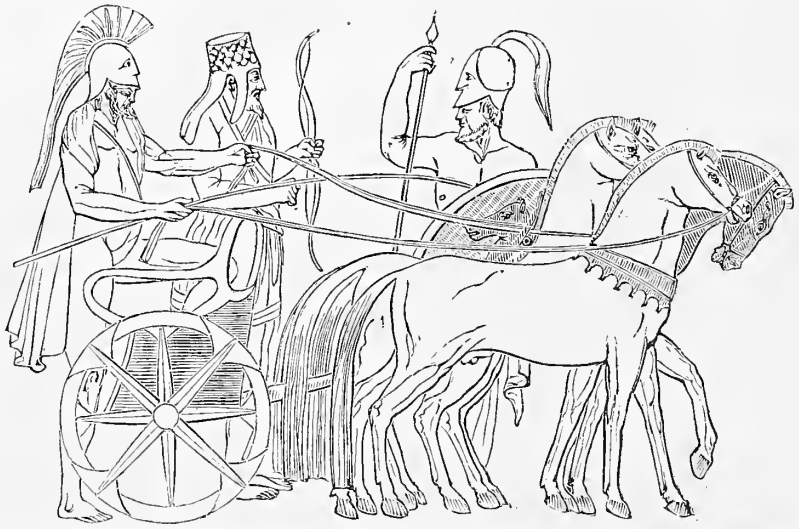
It is evident, from what has been advanced in the last problem, that if this instrument is applied to any circle, so that the parts A and C touch, the blade B D will pass through the center of the circle, and by two applications the center will be found. It will be seen by the workman that this instrument is especially adapted to the centering of hubs or small circles. If necessary where stocks shall be required of different curvatures, and blades of different lengths, he might have some two or three. I used to call this tool my *centering square*. In conclusion, permit me to observe that if I have described a tool that is now in general use I must crave your pardon for occupying your pages unnecessarily, and the workman for loss of time, in reading that which they are already acquainted with. Before closing allow me to remark, that in my future communications (as heretofore) I shall aim at simplicity and perspicuity, which ought ever to be the endeavor of him who writes for the instruction of others.

OUR GRECIAN CARRIAGE MUSEUM.

THE accompanying illustration is taken from an ancient Grecian vase, and is supposed to represent Mars as just mounting his car for a warlike enterprise, attended by armed soldiers. In this instance the god of war prefers to serve as charioteer, leaving his warriors to serve as body-guards.*

The *Diphros*, or Grecian war chariot, figures conspicuously in the works of Homer, as we have elsewhere shown. In the engraving representing a *Quadriga*, we have one of the best specimens of Grecian art. The *antugen*, or top rail, which served both the purpose of handles and finish, were sometimes made of metal, and sometimes of wood, but in all cases were left open, as we see in the

* Among the ancients the warrior ranked above the charioteer, this last being less dignified, the warriors directing where to drive. Eustatius tells us that when the soldier came in close encounter, he often alighted from his chariot and fought with the enemy on foot.



example under consideration. The wheel of singular design would appear to be metal of some kind. It certainly would require too much labor to make one such of wood alone, were it practicable.

Mars, who is supposed to be represented as the hero of the picture, is said by Homer to have been the son of Jupiter and Juno; but by Ovid, the son of Juno, without a father—the goddess Flora having presented her with a flower gathered in the Olenian fields, by the touch of which she became enciente. The old Ascrean poet calls him the "man-slayer, gore-stained, stormer of walls," who, mounted in a chariot, "over the yoke and the reins of the steeds, stretched himself forward with his brazen spear, eager to take away life," and says that on a certain occasion he *roared* "as loud as nine or ten thousand men roar in war." At the siege of Troy he appears to have "gone back on his mother," who befriended the Greeks, and taken the side of the Trojans, with Venus. For further details the reader must consult the Iliad.

Pen Illustrations of the Drafts.

C AND ELLIPTIC SPRING CLARENCE.

Frontispiece to Volume Eleven.

THIS elegant and original design for a fashionable style of Clarence is the work of our own artist. For a change, instead of a portrait of some American coach-maker, we have selected this vehicle as the frontispiece to the volume, which should be placed opposite the title-page in binding. The attention of the craft is especially directed to the following points of novelty in the drawing: The sweep in the front pillar, at the belt; the back sweep of the boot, and the bracings of the C-spring back.

The width of the body at the center, measured from outside to outside, should be about four feet six inches; across at the front pillars, three feet seven inches; the circular front, measured in the line of the door, one foot ten inches; across the boot, two feet eight inches; turn under at the pillars, five inches; back quarter at the belt-rail, two feet one inch; width of door, two feet one inch, and width of the seat, one foot six inches.

Painting.—Body dark-green, moldings striped black with one fine line gold; carriage part, black, with one broad line medium shade green, split with fine line gold.

Trimming.—Half and half morocco, with satin or cotoline linings. Heavy beveled glass in the windows and doors will add much to the richness of the vehicle.

Workman's price for building the body, $115; for making under-carriage, $22; for ironing, $95; for painting, $90; for trimming, $62. Manufacturers' charges for finished Clarence, $1,800 @ $2,000.

NEW YORK CHARGES FOR REPAIRING.—As far as applicable to the Clarence, the charges for the parts given in describing the Landau (plate XLI., page 168) will answer for this also, so that we deem it unecessary to repeat them here.

C-SPRING CALECHÉ.

Illustrated on Plate XLV.

WE give our readers this month another original design for a light elliptic and C-spring Caleche, suitable for summer exercise in the public parks or thoroughfares. Width of the body between the arm-rails, 50 inches; width of the boot, 32 inches. *Wheels.*—3 feet 4 inches and 4 feet 2 inches high; hubs, $4\frac{1}{4}$ by 7 inches; spokes, $1\frac{1}{8}$ inches; rims, $1\frac{1}{4}$ inches deep, steel tires, $\frac{5}{8}$ by 1 inch. *Springs.*—Front, 3 feet long, and about $10\frac{1}{2}$ inches apart; width of leaves, $1\frac{3}{4}$ inches; the head leaves No. 3 steel, the other plates No. 4. The hind elliptic should be a little less apart and about two inches shorter. In the selection of the C-springs the manufacturer must exercise his own judgment.

Painting.—Body, English patent black; Carriage part, dark-blue, striped with black broad stripe, edged with two narrow ones in white.

Trimmings.—Blue-black broadcloth.

Workman's price for making the body, $75. Manufacturer's charges for the carriage, $1,200.

Charges for Repairs.—The same as those given for the Caleche, on plate XXI., page 88.

NEW YORK BUGGY.

Illustrated on Plate XLVI.

THIS original design has some novel features to recommend it to our readers. The molding under the seat-riser

should be a little raised, and the back corners of both the body and seat slightly rounded. Width of the seat, 16 inches; length, 36 inches. Wheels, 3 feet 11 inches, and 4 feet 1 inch; hubs, 3¼ inches; spokes 1 inch; rims, 1¼ inches; tires (steel), $\frac{3}{16}$ by 1 inch.

Workman's price for building body, $18; carriage part, $8; wheels, $10; shafts, $3.50; spring-bars, $3. Manufacturer's price for the buggy complete, $465.

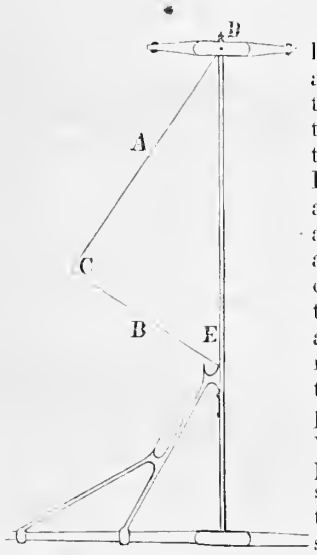
For prices in repairing, see other estimates for the same kind of a buggy in this volume.

Sparks from the Anvil.

LOCATION OF WEAR-IRONS.

BY P. B. J.

The object designed by the following article is to obviate a difficulty very frequently occurring in the construction of cut-under carriages; that is, the striking of the wheel against the stays. Now, in order to remedy a difficulty, it is always necessary, first, to ascertain its cause, and then apply the remedy. The reason we assign in this case is, that generally it is a matter of "guess work" with the blacksmiths where he places the head of his stay upon the perch. We refer the reader to the illustration in order to show how this defect may be remedied:



In the first place obtain half the width of the track, as on line A, measuring to the outside of the rim, and then get half of the height of the front wheel, as on line B. Next, take two slats, and fasten them securely, as at C, being certain that they are square at C with each other; place the point D at the centre of the king-bolt, and bring point E, which represents the wheel, to the perch which shows the point on which the wheel will strike, and also the point where the stay-head should be placed. In order that the wheel may not strike the stays, this rule will also be useful in designating the precise place where the "rub-iron" should be welded in the perch plate. Especially in large cities, on cut-under jobs, it is necessary that a rub-iron should be on the perch to prevent the cutting of the side plates by the wheel. With these brief explanations, I respectfully submit the drawing to the study of the reader, knowing that it will suggest points to be taken into consideration, and the means of remedying evils complained of.

New Tire.—Loos & Williams of this city have invented and patented an improved kind of tire, with a flange on the outer edges, to protect the felloe from injury.

ELLIPTIC SPRINGS.

BY PORTE PENCIL.

In this age of improvement, when so many *new* things are presented for public consideration, permit me to offer an *old* one in a new dress, which, I think, may be used to great advantage. In discussing the subject, perhaps I may exceed ordinary limits; but I hope to be allowed the privilege of going into detail. It is a singular fact, so far as we know, that the proper application of elliptic springs to carriages and buggies has scarcely ever been investigated. We only know the rules by which we are governed, and practice those which *experience* assures us are correct; but more frequently "guess work" is applied, without duly considering the amount of work which each spring is compelled to perform. To illustrate this "guess work" mode, suppose we have a top-buggy to iron off. The body has a seat, the center of which is six inches back of the center of the sill; many carriage-makers, not taking into consideration where the center of the seat is located, would take two 2¼ in. 4-plate springs, or two 1½ in. 3-plate, committing a serious error at the start; because when the buggy receives the weight, in the common parlance of the carriag-emaker, the back spring assumes a "squatting" attitude, the front remaining in nearly the same position as it did before it received its load; so that, when in use, the back spring has nearly all the work to perform, the front one refusing, in combination with the back one, to act. The back spring becomes weaker and more useless each time the vehicle is used, complaint being made by the customer that his back spring is "too weak," or good for nothing, whereby the carriage-maker incurs the useless and perplexing expense of a new spring, who at once condemns the manufacturer of the springs, when, at the same time, the fault lays entirely with himself, owing to his ignorance of the true application of the springs to the vehicle.

Practical experience has taught us that the position of the seat *must* be taken into consideration. Where we find a buggy seat the center of which is back of the center of the body, we invariably make *one plate difference* in the springs. There is scarcely a modern draft made with the seat less than six inches back of the center of the body, and in many cases we find the front of the seat on a line with the center of the body, consequently nearly all the weight is upon the back spring.

Again, how often do we see passing us upon the streets rockaways and top-buggies (owing to the "guess work" plan) having the appearance in front of "sky scrapers," or the back spring too weak, or, the *true reason, the front spring too stiff* for the back one. However strange it may seem to common observers, it is practically true that there are very few carriage-makers who understand the proper application of springs to carriages. There is, in the application to springs, the resistance of the air, which, in vulgar apprehension, passes for nothing, that comes to be an impediment to the motion of the carriage or buggy, as well as an additional weight upon the back spring, and may, in some cases, absorb five parts in six of the whole power or weight. Let it be remembered, at the same time, that the aerial resistance rises into consequence solely because it has a bearing upon these points.

Let us now estimate the weight as well as the retarding effect produced by this resistance of the air during

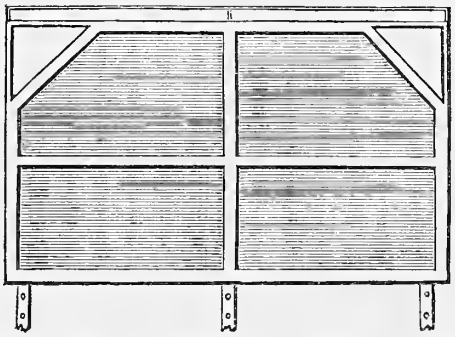
high winds. The resistance is such that means should be taken by the practical coach-maker to lessen it, where practicable, by making the front of a round or hemispherical shape, similar to the Clarence Coach. Let us suppose for illustration that there are two vehicles, each of equal weight. The one has a flat surface in front two feet six inches high, and three feet wide, having a front of fifteen square feet, which in reference to the pressure of the air is reduced to seven and a half feet by giving it a rounded form. The other is three and a half feet high, and four and a half feet wide, presenting a front of thirty square feet, but reduced to fifteen by its rounded form.

Now, still air is found by experiment to press with a force of sixteen grains upon a body presenting a front of one foot square, and moving at the rate of one foot in a second, and the pressure increases as the square of the velocity. Hence our coach when moving at the rate of four miles an hour, in a still atmosphere, would encounter a resistance from the pressure of the air of $1\frac{1}{8}$ lbs. At eight miles an hour the resistance would be $4\frac{1}{2}$ lbs.; at twelve miles, 10 lbs.; at sixteen miles, 15 lbs.; at twenty miles, $28\frac{1}{2}$ lbs. The coach presenting only half the surface in front would experience only half the resistance or additional weight. It is evident from this reasoning that upon the inside of a close top, showing a surface of at least fifteen square feet, and moving at the rate of say sixteen miles an hour, and more especially if the seat is back of the center of body, it would encounter a resistance or additional weight of fifteen pounds, which is added to the weight already upon the back spring.

To make an allowance for any thing of this kind, we set our bodies half an inch higher behind than in front, and adopting and following up the plans which experience has taught us of making calculations where the center of the seat comes in conjunction with the shape of the body, we are saved the unsightly and mortifying appearance of "sky scraper" vehicles upon our streets.

DASH-BOARD FOR BUGGIES.

In connection with this article we present our readers with an engraving of a dash-board for buggies after a new



pattern. It appears clumsy in the picture, but the frame being made of oval iron, when covered with patent leather, produces a very strong and handsome article for light vehicles.

Spring Manufactories.—Our readers will find the advertising cards of four manufactories in Bridgeport, Conn., where carriage springs are made of the best material and workmanship. We have always found them a superior article, perfectly reliable, and suited for first-class work.

REVARNISHING ENGLISH VARNISH.

In my present paper I will say a few words to you on the touching up and revarnishing of old work, and also of new work that has stood in the repository until it requires a coat of varnish to revive its brilliancy. You say that painters in America find a great deal of trouble in revarnishing English varnish that is not over a year old. So would the English painters, were it not for a simple but effective remedy which they employ, and of which I shall speak later in my letter.

In England, as is the case in America, there are many owners of carriages, especially livery men, who only want their vehicles touched up and given a coat of varnish, not desiring to go to any further expense than this would involve. Now, if a job finished with English varnish is simply rubbed and touched up, there are many serious difficulties which will assail the painter in giving it a coat of finishing varnish. It is not apt to "lay" well. If the previous coat of English varnish has not been on for over a year, the fresh coat will probably *refuse utterly* to "lay." In any case, there are many difficulties to overcome in order to make a coat clean and brilliant, to keep it from "enameling," and to keep it from striking in dead. Where it "strikes in," it looks dirty, and after it has run a week or two, it will often return to about the same state in which it was sent into the paint shop. These are a few of the difficulties which a painter has to look out for when revarnishing English varnish. And now, Mr. Editor, I will speak of the way the English painters manage to avoid these troubles, hoping that some of your painters in America will try it, and if it works well with them I trust they will not discard it as unworthy because of its being a London idea.

When we receive a livery or other carriage with the order to give one coat of varnish, we do it in this way. We rub it down well with pumice, cleanse, let dry, and dust off. We then mix some "Japan gold size" and turpentine together, say about one part of "gold size" to three parts of turpentine, or just sufficient "gold size" to leave a thin film upon the panel when dry. It takes only a few moments to apply and dry this coat, and this time is saved in "touching up," for the painter can see any bare edges or scratches on the job, and moreover, the color will dry solid over the parts "touched up," and will not work off when varnished. The coat of turpentine and "gold size," or "cider," asit may be called, also enters into the old varnish, and prevents the fresh coat from striking in or enameling, and it insures that the job will dry all over and with brilliancy, and that it will remain so when the job is run out into the sun.

Some painters might say that this "intercoat" would aid in cracking the varnish, but I can say from a long experience that I have never known it to do so. The contrary seems true, and I think this "cider" is a good preventive for cracking. I have often seen a job so done stand a year, and come in quite bright. New work can be done in the same way, that is, work that has stood in the repository until it has lost its luster, and the job will be *very much more durable* than if a coat of hard-drying varnish were given and then a finishing coat of English or American Wearing Body. The "gold size" is elastic, and corresponds with the coats of varnish upon each side. But, put a coat of hard-drying varnish between two coats of English, or indeed any two coats of elastic finishing varnishes, and the job is *sure to crack.*

I have always found this method to save time and insure a good job, and it can be used with equal success on either body or carriage parts. I have taken in a brougham in the morning; rubbed it down, given it a coat of "cider" and touched it up before dinner, and finished it in the afternoon.—*London correspondence of the Hub.*

Trimming Room.

Apologetical.—As our readers will have noticed, we have been compelled during the progress of this volume, to go to press with scanty material for this department. No one but those who have tried the experiment, know under what difficulties publishers labor, who are dependent on the movements of others. Although we had made —as we thought—permanent arrangements for monthly contributions to this department from practical workmen, at the commencement of the volume, when they were called upon matter was not ready, notwithstanding we had offered liberal payment for such. The fact is, most trimmers are either too modest to appear before the public, or else unable to put their practical knowledge in proper shape for the reading community. We hope, however, to have better success in the future.

Editor's Work-bench.

CARRIAGES AT AUCTION.

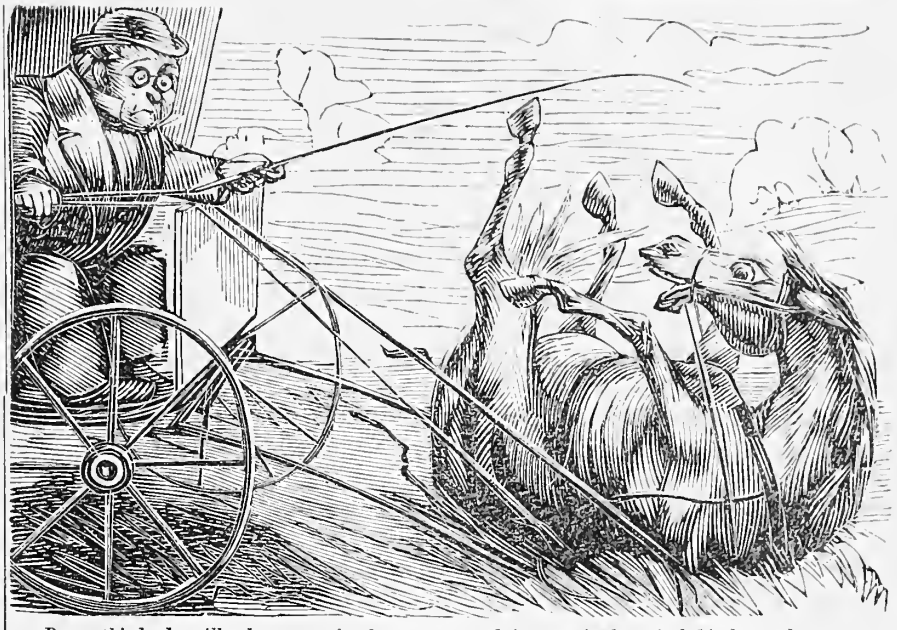
One of the largest sales of carriages we have known made at auction took place in this city on the sixth and seventh days of April, being the extensive stock in the Repository of Messrs. James B. Cone & Co., on Broadway. Some of the carriages in this collection—amounting to about $20,000—were very fine, and perhaps ought to have brought better prices, but much of it was injured by moth and time, and sold for all it was worth. The second-hand carriages may be said to have sold extremely well. Upon the whole, we think the retiring house has reason to be satisfied with the sales. We fear, however, that so large a sale at this particular season of the year will prove injurious to the interests of other houses in the trade, which we suppose must be accepted as one of the misfortunes of business. Having attended the sale, we are able to give a report showing the prices obtained for some of the new carriages.

No-top elliptic spring *Road Wagon*, leather trimmed, built by L. Adams, shafts only, sold to Mr. Wright for $145; turn-out seat, shifting top *Buggy*, trimmed blue cloth, seat two or four persons, by Bunce, New Haven, sold for $190; light *Coupe Rockaway*, on platform springs, panel back, curtain quarters, movable winter front and summer back, adapted for one or two horses, built by L. Adams, worth $700, sold for $440 to Rockwell; no-top elliptic spring *Road Wagon*, square box, blue cloth, worth $275, sold for $155 to Scofield; no-top *Duncan Dog Cart*, on platform springs, lined blue cloth, pole and shafts, by L. Adams, worth $600, sold for $370; very light, six-seat *Victoria*, on platform springs, trimmed green morocco, pole and shafts, by L. Adams, worth $800, sold for $540; elegant *Coupe Rockaway*, extra light, "of an entire new pattern," on platform springs, book steps, oil-cup axles, movable winter front and summer backs, drop window, beautifully trimmed, Bessemer steel axles and tires, pole and shafts, princes metal, worth $1,000, sold for $815 to D. Evans; circular front *Coupe*, fashionable, well trimmed in brown satin, mirror, child's seat, "all improvements," L. Adams, worth $1,300, sold for $890 to Frothingham; *Dog-cart*, on four springs, morocco trimmings, lamps, pat. axles, pole and shafts, L. Adams, worth $600, sold for $555 to Drake; *Park Phaeton*, on platform springs, seats four persons, shifting top and seats, morocco and cloth, J. B. Brewster, worth $1,100, sold for $780 to Milbank; six-seat *Rockaway, improved* pattern, lined in crimson satin, quilted roof, glass quarters and shifting front, book steps, steel axles, a fine family carriage, worth $1,500, sold for $1,050 to Munson; three-quarter *Clarence*, hung on C-springs, morocco, serge and broad lace, mirrors, speaking tube, beveled glass, book steps, Bessemer steel axles, by J. B. Brewster, worth $2,100, sold for $1,505; McAllister *Victoria*, with doors, fenders, low driver's seat, very light, by L. Adams, worth $900, sold for $760 to Brownell; elegant low dickey seat *Coach*, curtain quarters, by L. Adams, worth $1,300, for $890 to Frothingham; *Dog-cart Phaeton*, on four springs, morocco, pat. axles, pole and shafts, by L. Adams, worth $600, sold for $550 to Drake; light six-seat passenger *Rogers Phaeton*, blue cloth, storm-boot, lamps, &c., by L. Adams, worth $850, sold for $660 to Milbank; light half-top *Park Phaeton*, on two springs, blue cloth, shifting tops, pole and shafts, by L. Adams, worth $750, sold for $390 to Russell; half-top *Victoria*, on platform springs, folding child's seat, wings, blue silk, light, pole and shafts, worth $1,000, sold for $550 to J. B. Williams; C-spring *Close Coach*, glass panels, shifting front, Metropolitan boot, crimson satin, by L. Adams, worth $2,000, sold for $1,200 to McKim; *Britzka*, on combination springs, storm boot, wine colored morocco and half cloth, by L. Adams, worth $1,200, sold for $800 to Pitt; circular front *Coupe*, child's seat, mirror, speaking tube, brown satin, light, for one horse, pole and shafts, by L. Adams, worth $1,400, sold for $975 to Mott; elegant loop *Landau*, "Salisbury boot," on C-springs, book steps, rich brown satin and broad lace, heavy plate beveled glass, worth $1,800, sold for $1,620 to Williamson; six-seat *Park Phaeton*, drab, by L. Adams, worth $900, sold for $765 to Barton; London *Clarence*, full size, hung on C-springs, book steps, J. B. Brewster, worth $2,000, sold for $1,450 to Pratt; deep-side dog-cart *Pheaton*, on perch, by L. Adams, worth $550, sold for $340 to Valentine; *Landau*, morocco and satin, book

steps, steel axles and tires, by J. B. Brewster, worth $2,000, sold for $1,410 to Valentine; duplicate of the Bonner wagon described on page 175, worth $335, sold for $300 to Bellows; *Pony Phaeton*, with shafts only, morocco, worth $350, sold for $175 to Hobart; shifting-top *Buggy*, roll-up sides, blue cloth, worth $450, sold for $280 to J. Munn; *Sociable*, six seats, tan silk coteline, low dickey seat, by L. Adams, worth $1,050, sold for $500 to Barton; light extension-top *Cabriolet*, on platform springs, blue cloth, pole and shafts, by L. Adams, worth $700, sold for $500 to Tyson; glass quarter *Coach*, low dickey seat, quadrant lights, tan silk coteline, by L. Adams, worth $1,300, sold for $875 to Schultz; half-top *Park Phaeton*, grey cassimere, seats and top to shift, by J. B. Brewster, worth $850, sold for $650 to Wright; *C-spring Brett*, blue silk, pat. axles and book steps, by L. Adams, worth $850, sold for $900 to Baxter; *Dog-cart Phaeton*, on platform springs, pole and shafts, by L. Adams, worth $600, sold for $400 to Ely; *Basket Pony Phaeton*, with rumble and umbrella, worth $300, sold for $215 to Preble; shifting-top *Buggy*, roll-up sides, in drab cassimere, by L. Adams, worth $450, sold for $227.50 to Bates; *Six-Passenger Rockaway*, blue cloth, curtain quarters, by L. Adams, worth $900, sold for $565 to R. R. Barto; *Shifting-top Buggy*, Lane's pat. springs, cloth lining, worth $400, sold for $230 to C. S. Sherman; duplicate of the last sold for $260 to Honker; halftop *Phaeton*, on four springs, drab cloth, by L. Adams, worth $700, sold for $400 to Preble; square-box road *Wagon*, cloth, by L. Adams, worth $325, sold for $165 to Bouton; six-passenger *Depôt Wagon*, ribbed body, leather, by L. Adams, worth $600, sold for $320 to Banks; half-top *Phaeton*, two springs and perch, brown cloth, pole and shafts, worth $500, sold for $205 to Champlin; top *Pony Phaeton*, with rumble, blue cloth, worth $450, sold for $200 to Morgan; shifting top *Buggy*, on Lane's patent springs, blue cloth, by L. Adams, worth $460, sold for $260 to Perry; shifting-top *Buggy*, brown, by J. B. Brewster, worth $500, sold for $375 to Bates; dog-cart *Phaeton*, four springs, blue cloth, pole and shafts, by L. Adams, worth $675, sold for $320 to Gibson; half-top *Under Phaeton*, three springs, cloth, pole and shafts, worth $475, sold for $250 to Townsend; *Britzka*, platform springs, blue silk reps, worth $1,000, sold for $530 to Preble; six-seat *Westchester Rockaway*, cloth, curtain quarters, worth $1,100, sold for $615 to Packer; gentleman's top *Buggy*, by L. Adams, worth $475, sold for $315 to Preble; *Cabriolet*, on elliptic and platform springs, worth $800, sold for $495 to Lord & Taylor; *Landaulet*, on C-springs, Metropolitan boot, brown cloth, silver mounted, J. B. Brewster, worth $1,600, sold for $1,100 to Woodward; light *Britzka*, on platform springs, brown silk coteline and lace, book steps and storm boot, by L. Adams, worth $900, sold for $825 to Woodward; *Dog-cart*, drab, pole and shafts, worth $600, sold for $295 to Brooks Brothers; *Landau*, combination springs, brown satin, book step, oil-cup axles, by J. B. Brewster, worth $2,150, sold for $1,505 to Preble; three-quarter *Clarence*, combination springs, drab silk serge, beveled plate glass, book steps, oil-cup axles, by J. B. Brewster, worth $2,000, sold for $1,500 to Bernheimer; eight-spring *Landau*, hung on double C or suspension springs, morocco and cloth, "the best ironed carriage in the city," by J. B. Brewster, worth $3,000, sold for $1,940 to Alden; *Circular front Coupe*, extra light, for one horse, blue morocco and satin, quilted roof, beveled glass, mahogany frames, gold mountings, pole and shafts, "the handsomest Coupe in this city," *built to order for a man going to Europe*, worth $1,600, sold for $1,090 to Harrison; *Park Phaeton*, platform springs, morocco and cloth, shifting top and seats, by J. B. Brewster, worth $1,100, sold for $690 to Faile; dickey-seat C-spring *Victoria*, rich blue satin, fenders, worth $1,600, sold for $970 to Woodward; *Four-in-hand Drag*, rumble, concealed steps to driving seat, "magnificent carriage for Park," worth $2,500, sold for $1,025 to Jim. Fiske; *McAllister Victoria*, for six persons, silk, double fenders and doors in the sides, by L. Adams, worth $1,000, sold for $790 to Vansant; three-quarter *Clarence*, combination springs, blue satin, gold mountings, beveled plate glass, by J. B. Brewster, worth $2,100, sold for $1,350 to Moss; light *Brett*, on combination springs, brown silk and morocco, folding steps, by L. Adams, worth $1,500, sold for $1,050 to Heath; *Dog-cart*, two springs, morocco, *light enough for the road*, by J. B. Brewster, worth $450, sold for $355 to Bliss; six-seat *Park Phaeton*, brown cloth, lid to front seat, by L. Adams, worth $1,175, sold for $625 to Clapp; summer *Coach*, round body, leather curtain quarters (squabs for winter), brown cloth, by L. Adams, worth $1,400, sold for $750 to Woodward; circular-front *Brougham*, platform springs, folding child's seat, sliding lights, dove-colored silk coteline, gold mountings, worth $1,500, sold for $1,055 to P. McCue; *Alstyne Coach*, platform springs, blue silk, by Parker, worth $1,500, sold for $1,060 to Jennings & Noyes; *Cabriolet*, with child's seat, on platform springs, worth $1,000, sold for $625 to Humphrey; half-top *Phaeton*, for four passengers, on four springs, morocco, by Adams & Cone, worth $750, sold for $410 to Vansant; *Park Phaeton*, shifting top and seats, four elliptic springs, by J. B. Brewster, worth $850, sold for $610 to Hewett; four-passenger shifting-top *Depot Wagon*, for one or two horses, two seats, worth $750, sold for $400 to Haight; no-top *Road Wagon*, elliptic springs, by L. Adams, worth $325, sold for $165 to Brown; *Wagonette* for six persons, leather, by L. Adams, worth $750, sold for $470 to Townsend; no-top *Depot Wagon*, for four passengers, toe board, leather, by L. Adams, worth $375, sold for $205 to Scofield; one-horse cut-under *Rockaway*, four passengers, high doors,

leather curtains, pole and shafts, worth $650, sold for $375 to Doane; no-top *Road Wagon*, three-quarter seat, brown cloth, by Parker, worth $300, sold for $240 to Vansant; *Pony Phaeton*, panel body, by L. Adams, worth $550, sold for $310 to French; shifting-top *Buggy*, cloth lined, by Parker, worth $475, sold for $300 to Talbot; two *Concord Wagons*, worth $122 each, sold for $80 each; *Skeleton Trotting Wagon*, by Lane, of Philadelphia, with his pat. springs, sold for $85 to Tuthill.

The Wooden Horse, used as a sign by the establishment, previously noticed in this Magazine, which the auctioneer said was "sired by Old Block," estimated worth $500, sold for $240 to Bradstreet. Several sets of fine harness went off at very good prices.



Boggs thinks he will take a turn in the country and is surprised to find his horse the same way inclined.

TRADES-UNION DESPOTISM.

More than once, as historians of passing events, we have been called upon to record the tyrannical and outrageous transactions of a clique banded together under the name of Trades-Unionists, who, with doggish manners, will neither work themselves, nor let others work—unless on such terms as they dictate. Although frequently brought before the courts, these "roughs" generally manage to escape just punishment through the influence of politicians and the agency of legal shysters. It therefore affords us extreme pleasure to be able to present our readers with the record of a recent case where an individual was brought to grief and muleted in the sum of twenty dollars, besides entering into sureties of one thousand dollars to keep the peace for one year to come, for an outrage against the rights of another.

The circumstances were these: An Englishman by the name of Phillips, who only arrived in this country about Christmas last, preferring to work rather than starve, took a job at Jacksons' Iron Works, in Fourteenth street, at less than Union prices. Soon afterward he was told by one Owen Clarke, that if he continued work at such wages "he would get a ball through him." Not heeding the threat, on returning home one evening, Phillips and Clarke were both passengers on the same ferry-boat, when the defendant and several other unionists attacked Phillips, by striking him and afterward kicking him from one end of the boat to the other. These facts were proved by two witnesses.

The defendant being placed on the stand said that he had been at those works since 1857; that a strike had existed in this shop since the 15th of December; he went up to the complainant and told him that he was doing wrong in going to those works and working at a reduction of wages, and that he was taking the bread and butter out of his (defendant's) family's mouths and those of the families of several hundred men; complainant answered that he had a perfect right to do so if he thought well. In cross-examination the witness admitted that he and other men had followed the complainant and others from their work.

Mr. Spencer, who appeared on behalf of the complainant, said that he was anxious to say to the court, that Messrs. Jackson did not wish the defendant to be more punished than was necessary to warn others from repeating this offense. They wished to mention the fact that this man was in all probability acting under an organization. They wished to say also, on their own behalf, that during the season they had increased the wages ten per cent.

Mr. Hummel appeared for the defendant, and the case was decided against him as before mentioned.

"THE WORLD ON WHEELS."

This work, previously announced as in course of preparation, will be published soon, either by the Editor of this Magazine, or probably the Messrs. Appletons, that matter not yet being decided upon. Meanwhile we are taking subscribers names for the work. Please send us your name, the money to be paid when the book is delivered. Literary men who have seen the MS. say it will be an interesting and valuable production.

VOLUME TWELVE.

Our readers are reminded that the number for June, which will be ready on our regular publication day, begins a new volume—Volume Twelve—of this Magazine. We trust that our friends and subscribers will be prompt in renewing their subscriptions, and forward a Postal order for the amount without delay. Those who can, will oblige us by organizing clubs, the terms for which, and other necessary information, will be found on the first page of the cover of this number.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

New York, April 20, 1870.

Apron hooks and rings, per gross, $1 *a* $1.50.
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 7 c.
Axles, plain taper, 1 in. and under, $5.00; 1⅛, $6.00; 1¼, $7.00; 1⅜, $9.00; 1½, $10.00.
Do. Swelled taper, 1 in. and under, $6.50; 1⅛, $7.00; 1¼, $8.00; 1⅜, $10.00; 1½, $13.00.
Do. Half pat., 1 in. $9; 1⅛, $10; 1¼, $12; 1⅜, $15.00; 1½, $18.00.
Do. do. Homogeneous steel, ⅞ in., $10.00; ¾, $10; ⅞, $11.00; long drafts, $2.50 extra.
☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.
Bands, plated rim, 3 in., $1.75; 3 in., $2; larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Bolts, Philadelphia, list. 45 off.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 16 *a* 20c.
Burlap, per yard, 10 *a* 12c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Bruss., $1.75 *a* $2; velvet, $2.50 *a* $3.50; oil-cloth, 40 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $1.25, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $12 *a* $16.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.25.
Enameled cloth, muslin, 5-4, 32c.; 6-4, 50c.
Enameled Drills, 45 in., 45c.; 5-4, 40c.
Do. Ducks, 50 in., 65c.; 5-4, 60c.; 6-4, 80c.
☞ No quotations for other enameled goods.
Felloe plates, wrought, per lb., all sizes, 15 to 18c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.25 *a* $1.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.
☞ For a buggy-top two pieces are required, and sometimes three.
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $1.75.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach, $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 23c.; railing do. 20c.; soft dash, No. 1, 14c.; do., No. 2, 10c.; hard dash, 15c.; split do., 15c.; No. 1, top, 23c.; enameled top, No. 1, 23c., do., No. 2, 20c.; enameled trimming, 20c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 12c.; ⅜, 13c. *a* 16c.; ½, lead, door, per piece, 30c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates, $5 for 25, $8 for 50.
Oils, boiled, per gal., $1.20.
Paints. White lead, extra, $12.00, pure, $13.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $6 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Sand-paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's, 40 per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 13c.; bright, 15c.; English (tempered), 18c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.
☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.
Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.
☞ For extra hickory the charges are 10c. *a* 12½c. each.
Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 12c.; 1-4 x 1, 12c.; 3-16 x 1 1-8, 13c.; 3-16 x 1, 13c.; 3-16 x 7-8, 14c,; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close plated nuts and rivets, 75*a*80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2. Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 50c.
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.00; nonpareil, $5.25.
Do. English, $6.25 to $7.50 in gold, or equivalent in currency.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.

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